5-2013

Volunteer Programming Impact on Long-Term Care Facilities

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VOLUNTEER PROGRAMMING IMPACT ON LONG-TERM CARE FACILITIES

by

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A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Philosophy

Major: Human Sciences

(Gerontology)

Under the Supervision of Professor Karl D. Kosloski

Lincoln, Nebraska

May, 2013

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University of Nebraska, 2013

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The purpose of this present study was to examine the direct and indirect effects between the organizational structure of a long-term care facility, the amount of volunteers at the facility, the activities in which volunteers engage while at the facility and daily average number of hours care staff spend with nursing home residents. The time care staff spends with residents has been directly linked to the quality of care provided by the facility. This time is measured by calculating nursing hours per patient and it includes only nursing staff hours.

The data for this study come from the National Nursing Home Survey (NNHS) – 2004, sample size of 1,174. Using exploratory SEM (ESEM) and confirmatory factor analysis (CFA) two underlying latent factors for types of volunteer activities were revealed, i.e., Volunteer Provides Socialization and Volunteer Provides Staff Support. A subsequent SEM analysis revealed a number of causal links between these two types of volunteer activities with other predictors and the final outcome variable of quality of care. Socialization activities had a negative direct effect on nursing hours per patient and staff support activities had a positive direct effect on nursing hours per patient. Organizational structure was represented by the exogenous variables, type of ownership, facility belongs to a chain of nursing homes, primary source of payment, (Medicare or Medicaid) and the number of beds in the facility. Whether the facility belongs to a chain or not was not significantly related to either of the two factors of types of volunteer activities, i.e., socialization or staff support. However, the type of ownership, i.e., for profit versus nonprofit had positive direct

effects on both the frequency of volunteer visits and the size of the volunteer pool indicating that nonprofit facilities are more likely to have larger volunteer pools and more frequent volunteer visits. Additionally, nonprofit facilities are more likely to use their volunteers in staff support roles such as conducting clerical duties, helping at mealtime, and providing personal cares. For-profits are more likely to use their volunteers in socialization activities such as game playing, conducting religious services and making social visits.

DEDICATION

With great regard and commitment to the

men and women who live and work in nursing homes,

this dissertation is dedicated.

ACKNOWLEGEMENTS

I would like to express my deepest gratitude and appreciation to the members of my committee. I especially want to thank Dr. Karl D. Kosloski, the chair of my committee, who from the beginning and throughout my education has been a great and caring mentor urging me on and providing the guidance that has brought me to this place today. I also want to express my deep gratitude to the other committee members beginning with Dr. Kyle Kercher who opened my eyes to and understanding of the methodological practices that produce excellent research. I am also grateful to him for always being available to answer my questions and guiding me through this project. With that I am also want to acknowledge and thank committee member Dr. Karen Kangas Dwyer, who through her courses in communications showed me the way to transform research into state-of-the-art training programs that I use to train volunteers in nursing homes. Because of her, the lives of many nursing home residents will be touched. And finally, Dr. Julie L. Masters, committee member and the chair of the Department of Gerontology, whose passion for older adults, for gerontology, and for life itself is contagious and inspirational. Her belief in me gave me the courage and the will to complete this project.

I am deeply in love with and grateful for the one person that made all of this possible, my wife, Mary Falkowski. Without her support, encouragement and unending patience, I could never have started or finished this work. How many weekends did she spend alone while I studied? Many. She is my life-long companion and best friend to whom I am deeply indebted.

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INTRODUCTION

Rationale for the Study

Beginning with January 1, 2011 and continuing through the year 2029, an astounding number, eight to ten thousand people each day, of the Baby Boom generation are crossing the retirement threshold with the occasion of their 65th birthday. This break-neck pace will continue until the year 2030 when some 80 million people will have reached the age of 65, (Vincent & Velkoff, 2010). While it is difficult to predict exactly how many people will need long-term care, it is certain that the number of persons needing long-term care will increase significantly, with predictions ranging from a 30% to 100% increase, (Allen, 2005). The strain on the long-term care community will be great. Starting in the year 2030, the first wave of Baby Boomers will turn 85 years of age, at which time the likelihood of needing long-term care increases.

Coupled with this exponential growth in the over 65 population, is a staff shortage in the long-term care industry. Currently, there is an overall nursing shortage of about 7% for registered nurses (RNs) and about 5.1% for certified nursing assistants, (CNAs) (*Report of Findings Nursing Facility Staffing Survey*, 2010). Strategies and programs currently in place to attract people into long-term care may not be able to keep up the pace with the ever increasing staffing needs (Buerhaus, Donelan, Ulrich, Norman, & Dittus, 2005; Heinrich, 2001). This lack of labor availability will have a significant and deleterious impact on the quality of care residents of long-term care receive.

Finally, dollars expended on long-term care will increase, likely to more than double, (Allen, 2005) with the growing long-term care population. In 2003, the cost of

long-term care was about 183 billion dollars (Allen, 2005). About 66% of that cost was covered by Medicare and Medicaid, 18% and 48% respectively. The remaining 34% is covered by private sources such as home equity, personal savings and long-term care insurance. By the year 2050, the cost of long-term care could reach $379 billion dollars, (Allen, 2005). The cost of long-term care is likely to have a substantive negative impact on the quality of care and staffing.

Significance of the Study

Three factors then may adversely affect the quality of care: 1) exponential growth in the over 65 population, 2) severe staff shortages, and 3) rising costs for providing long-term care. These factors will present serious challenges for meeting the long-term care needs of older adults. What other resources might be available to help us in this time of crisis? A robust trained volunteer force could be one important resource to explore and cultivate.

Volunteers within the long-term care facility, not part of the paid workforce, not beholden to time clocks and not constrained by required daily regimens, may provide the opportunity for nurturing valued and necessary positive emotional relationships. Volunteers are more likely to have the freedom to determine the use of their time while in the facility and to expend as much time as they desire with a resident. In addition, volunteers can be trained to provide personal cares such as dressing, grooming and/or feeding the resident, thus reducing the workload for the staff. The benefits of having a robust volunteer force that provides staff support and resident socialization is, then, hypothesized to free the nursing staff from tasks that draw them away from providing

more nursing care. This increase in nursing care results in increasing nursing hours per patient provided each day.

Problem Statement

The way in which long-term care facilities are structured can affect the volunteer program and subsequently may enhance or diminish the quality of resident care. Studies to date have looked at various aspects of the long-term care facility but few have examined and compared differing volunteer roles in relationship to the way the nursing home is organized and the impact volunteer programs have on the quality of care received by the nursing home resident.

With this in mind, I will, first, examine the direct and indirect effects of the organizational structure, i.e., belonging to a chain, ownership type, sources of payment and the number of beds in the facility on the amount of volunteers involved in the nursing home and the activities in which the volunteers engage while at the nursing home (see Figure 1). From there, I will examine the activities in which volunteers engage and the effect that the volunteer activities have on the time nursing staff spend with the nursing home resident each day.

The next chapter will review the literature covering volunteer activities in long-term care, how long-term care facilities are organized and the ways in which the quality of care being provided by the long-term care facility is measured. Frequent reference will be made to Figure 1 to act a guide for the reader during the literature review. It will be noted in Figure 1 that causal effects are annotated with "+ - and ?" These annotations represent the expected effects based upon the literature review with the "?" representing

effects not studied in previous research. The dashed lines indicate non-significant effects, once again based on existing research.

CHAPTER 2

LITERATURE REVIEW

An examination of the relationship between volunteer activities within a long-term care facility and those activities may improve quality of care requires a review of the four components of the proposed model: 1) existing long-term care volunteer activities, 2) amount of volunteers, 3) organizational structure of long-term care facilities and 3) the average number of hours nursing staff spend with each resident, see Figure 1.

Volunteers in Long-Term Care

Definition

Volunteers are individuals who freely offer and apply their time, talents and skills for the purpose of advancing a cause, a purpose, a mission of an informal or formal group without expectation of compensation other than the reciprocal benefit of experiencing the personal satisfaction accompanying the effort of helping others (Carstensen & Lockenhoff, 2003; Sevigny, Dumont, Cohen, & Frappier, 2010; Shin & Kleiner, 2003)

Powers (1998) goes on to describe three categories of volunteers, 1) the volunteer looking for a specific need that can be met in a finite period of time, 2) the volunteer that is highly committed and passionate about a cause and serves on an ongoing basis, and 3) the volunteer that is coerced or forced to volunteer by someone in authority such as an employer.

Recent History of Amount of Volunteers in Long-Term Care

For the purposes of this study, this discussion is limited to the history of volunteer activities within the long-term care community. Using the National Nursing Home Surveys of 1985 and 1999 (Jones, 2002; United States Department of Health and Human

Services. National Center for Health Statistics, 2006), Moss & Remsburg (2005) found a significant increase in the use of volunteers from the years 1985 to 1999. The increased use of volunteers would indicate that long-term care facility owners and operators began to realize the value of their volunteer force and the value they added to the long-term care community (Moss & Remsburg, 2005). In fact, the number of nursing homes utilizing volunteers jumped from 78% in 1985 to 87% in 1999. The most current National Nursing Home Survey (United States Department of Health and Human Services. National Center for Health Statistics, 2004) indicates that about 82.7% of long-term care facilities are using volunteers.

Types of Volunteer Activities

Volunteers serve in a variety of capacities in the long-term care community to include socialization of the patients, administrative support, spiritual support, practical support, respite support, bereavement support and mental health support (Claxton-Oldfield, Gosselin, & Claxton-Oldfield, 2009; Damianakis, Wagner, Berstein, & Marziali, 2007; Gross, 1961; Moss & Remsburg, 2005; Musson, Frye, & Nash, 1997). Volunteers nurturing relationships with nursing home residents are sensitive to behavior changes that can be reported to staff and in some instances even lead to the recognition and treatment of depression (Claxton-Oldfield et al., 2009).

Gross (1961) observed that volunteers participating in The Friendly Visitor Service of San Mateo County provided both for the socialization of the nursing home resident as well as providing staff support. Volunteer duties included reading and writing letters, performing errands, and grooming the residents (Gross, 1961) as well as having the freedom to provide the nursing home residents with something that the staff could not

provide but the volunteer could provide, i.e., “personal and leisurely conversation.” To prepare volunteers for the long-term care environment, a one-day training for these volunteers included topics covering the provisions of long-term care, both the physical and psychological aspects of aging, and the process and techniques for making successful one-on-one visits (Gross, 1961).

Damianakis et al., (2007) conducted a twelve-week study in which volunteers were trained to provide one-on-one visits. For the first six weeks the volunteers received training and their visits with the residents were supervised. For the remaining six weeks they made their visits unsupervised. The training included, 1) the operations and organization of a long-term care facility, 2) topics associated with dementia and the cognitively impaired person, and 3) observing patients in activities (Damianakis et al., 2007). Researchers observed and recorded the experiences and behaviors of the volunteers interacting with the long-term residents, including frequency of eye contact and facial expressions (Damianakis et al., 2007). The goal of the study was to understand the volunteer’s interactions with the residents both in structured and unstructured settings, and to garner feedback from the volunteers concerning their subjective reactions to the experience and self-reported benefits derived from the volunteer experience (Damianakis et al., 2007).

Volunteers were free to visit whomever they pleased and to spend as much time as they so desired but were instructed to spend no less than 30 minutes with any one resident. The volunteers were also free to use whatever resources were available to them to include aviaries, games, and areas designated for resident activities (Damianakis et al., 2007). The results of this study revealed volunteer efficacy in preserving the personhood

of the resident by using the knowledge of the resident's history to provide the catalyst for relationship building even in the presence of cognitive impairment. Using appropriate touch and validating language the volunteer reinforced the resident's perception that the volunteer was sincere in his or her desire to be with the resident at that moment and through this interaction elevated the resident's sense of value (Damianakis et al., 2007).

Damianakis et al., (2007) recorded the three needs expressed by the participant volunteers as follows: 1) high quality training content, 2) ongoing training, and 3) a variety of training modes to include manuals, workshops, and seminars, while noting that long-term care facilities that implemented these strategies were more likely to have successful programs. The volunteers perceived their role in the long-term care environment as engaging the residents both in group settings as well as in individual settings, improving the nursing home resident's quality of life, and finally improving their own interpersonal skills (Damianakis et al., 2007). The emerging themes from this study included: 1) relationship building, 2) contributing to the long-term care environment, 3) preserving personhood, and 4) resident-centered presence (Damianakis et al., 2007). Volunteer training can further provide for mastery of more complex skills such as feeding patients that are experiencing aphasia.

Aphasia is the decline in one's ability to speak or understand language and is most often the result of a person experiencing a stroke, head injury, or an advancing condition such as the growth of a tumor ("The Merck Manuals: The Merck Manual for Health Care Professionals," n.d.). This loss in ability to communicate leads to increased social isolation of the nursing home resident (Hickey, Bourgeois, & Olswang, 2004; Kagan, Black, Duchan, Simmons-Mackie, & Square, 2001). Kagan et al., (2001) conducted a

study in which forty volunteers participated. Twenty of the volunteers received training in "Supported Conversation for Adults" (SCA) with aphasia and the remaining twenty volunteers acted as the control group. The results revealed significant and encouraging differences between the trained group and the control group, i.e., the trained volunteers recognized and acknowledged the "competence" of their partners experiencing aphasia while the participant's experiencing aphasia scored higher on communication skills (Kagan et al., 2001). In a similar study conducted by Hickey et al., (2004) four volunteers were trained to communicate with persons experiencing aphasia using various non-verbal communication techniques. The results of their study indicated that with training the volunteers were increasingly more comfortable with nonverbal forms of communication and thus relied less on verbal communications and increasingly on non-verbal communication techniques to communicate. At the same time, the persons experiencing aphasia, while their aphasia did not subside, scored higher on "comprehensible utterances," meaning that they had developed a method of communication other than just speaking alone (Hickey et al., 2004). With training, the volunteers discovered new ways of communicating while the resident experiencing aphasia experienced the increased capacity to share their thoughts and feelings. As with aphasia, volunteers can receive training that to some degree mitigates resident depression.

Depression experienced by nursing home residents can result in social isolation of the nursing home resident, apathy, as well as aggressive and confrontational behavior (Nagel & Cimbolic, 1988). Nagel & Cimbolic, (1988) conducted a study in which they trained twenty volunteers in emphatic listening and the remaining twenty volunteers were given some general training on the aging process. Residents visited by both groups of

volunteers showed significant improvement in depression scores (Nagel & Cimbolic, 1988). Nagel & Cimbolic (1988) note that both groups emerged from their training feeling "prepared and enthusiastic," leading them to conclude that the perception of being "trained," was more salient in the success of the visit rather than the therapeutic technique.

Volunteers provide staff support as well, (see Figure 1) such as the "Silver Spoons," (Musson et al., 1997; Musson, Kincaid, & Ryan, 1990). In this program, volunteers were given extensive training in the feeding of nursing home residents with the purpose of assisting the staff at mealtimes in feeding the residents. Musson et al., (1990) found that a large facility, i.e., more than 200 beds, also had a large population of elders that were experiencing dysphagia, that is the residents who were experiencing difficulties swallowing. They also had difficulties feeding themselves as well. The facility did not have the staff to properly insure that this population was getting the nutrition and hydration that they needed (Musson et al., 1990). In response to this need, the Silver Spoons was formed and as of the 1997 study over 500 volunteers had been trained to feed residents (Musson et al., 1997). Volunteers were trained in all aspects of feeding a nursing home resident to include proper positioning of the resident, the rate at which the resident should be fed, the amount of food that can be comfortably taken in with each serving, recognizing signs of aspiration, and nonverbal signs of discomfort (Musson et al., 1990). To begin then, volunteers were paired with a nursing home resident that needed either some or moderate help eating. As time passed and the volunteer gained experience, they were given the option to move to assisting residents that needed total assistance (Musson et al., 1990).

The study revealed that volunteers could be trained to feed residents and that the benefit of having volunteers feed the residents was, as noted by Gross (1961) the luxury of time (Damianakis et al., 2007; Musson et al., 1997). One nursing home aide may be responsible for feeding as many as 10 residents either in a common eating area or privately in the resident's room (Musson et al., 1990). Hu, Huang, & Cartwright (1986) found that the average time spent by an aide feeding one resident was about 18 minutes in contrast to a family member taking up to 99 minutes to feed a resident. In similar fashion, the Silver Spoon volunteers not pressured by time constraints, transformed what once was a race to finish eating into a leisurely meal that included socialization of the resident (Musson et al., 1990). Other facilities went on to expand the idea of Silver Spoons with the addition of "Happy Hour" and "Second Seating," (Musson et al., 1990). For a nursing home resident, malnutrion and dehydration means increased incidents rates for urinary tract infections (UTI's), confusion, and even premature death (Kiely & Flacker, 2003; Musson et al., 1990). Cherry (1993) would agree that volunteers can be trained and complement the staff by providing for the personal needs of the resident. Volunteers can positively impact the quality of care and the efficiency of the facility but it requires planning and training (Berta, Laporte, & Kachan, 2010; Cherry, 1993; Litwak, 1985), otherwise the untrained or poorly trained volunteer may become a burden for the staff by increasing their workload (Van der Ploeg, Mbakile, Genovesi, & O'Connor, 2012).

Van der Ploeg et al., (2012) examined the possibility that volunteers could through the use of non-pharmacological interventions abate the effects of negative behaviors and moods resulting from the effects of dementia. The results of the study

showed (as with previous studies mentioned above) that volunteers with training had the benefit of unlimited time to learn of the nursing home resident's history and to provide what was found to be the most effective non-pharmacological interventions, one-on-one visits, and listening to music specifically chosen and tailored to the resident's personal preferences, versus simply listening to "standard" classical music (O'Connor, Ames, Gardner, & King, 2009; van der Ploeg et al., 2012). In comparison, aromatherapy and hand massage were found to be only moderately effective in reducing agitation (Kong, Evans, & Guevara, 2009; van der Ploeg et al., 2012). O'Connor et al., (2009) point out that the nursing home environment is "so unstimulating" that any activity that breaks the tedium of the nursing home resident's daily existence is efficacious in reducing behaviors associated with dementia. Finally, as with the study conducted by Damianakis et al.,(2007) volunteers in this study expressed a desire for more training in the disease process, communication skills, and ongoing volunteer support (Van der Ploeg et al., 2012).

Classification of Volunteer Activities within Long-Term Care

Overarching the review of volunteer tasks and duties is the discussion concerning the classification of tasks and duties associated with the care of nursing home residents. The duties performed by care staff and volunteers can be classified as either technical or non-technical and/or routine versus non-routine tasks (Claxton-Oldfield et al., 2009; Litwak, 1985).

Routine versus non-routine activities.

Busy care staff are responsible for dressing residents each day. Because of heavy workloads and short staffing they may not have the time to consider the unique tastes and

desires of each resident they are dressing (Claxton-Oldfield et al., 2009) resulting in the nursing home resident wearing a mix of clothing that may not be to their liking but is functional in the sense that they are "dressed." The process of dressing the resident becomes a routine procedure that disregards the individual and emphasizes the completion of the task at hand, i.e., so many beds to make, so many mouths to feed, and so many people to dress and groom (Claxton-Oldfield et al., 2009).

Conversely the volunteer has the time to perform these tasks in a personalized, non-routine manner allowing the resident to express their unique tastes in makeup, choice of clothing, color matching, hair styles, even variations in meal menus and mealtimes (Claxton-Oldfield et al., 2009; Litwak, 1985). Organizations will formalize and standardize tasks to avoid negative outcomes, however the volunteer in performing a task such as grooming or dressing a resident is doing so from altruistic motivations which results in better outcomes for the nursing home resident (Litwak, 1985). Individualized and personalized treatment of nursing home residents is more effective in elevating quality of life and self-worth, reducing problems behaviors, providing emotional support and garnering relationships more intimate than those with staff (Berta et al., 2010; Claxton-Oldfield et al., 2009; Cohen-Mansfield & Werner, 1997; Gross, 1961; O'Connor et al., 2009; van der Ploeg et al., 2012).

Technical versus non-technical tasks.

Tasks can also be classified as technical or non-technical (Litwak, 1985). In their study, Litwak & Figueira (1968) define technical knowledge as requiring training and expertise such as nurses caring for wounds or administering medications and non-technical knowledge as socialization activities such as speaking, dressing oneself, eating

and preparing one's meal. With that in mind, (Litwak, 1985) argues that using a highly trained worker to dress someone is a misuse of resources and that a volunteer or a family member could do as well or as discussed above, actually better than the technical worker who is rushed by a heavy workload. The challenges of nursing homes providing poor non-technical support can be alleviated by using volunteers and family members to provide non-technical supports (Litwak, 1985).

Volunteers and Long-Term Care Staff Relations

As previously discussed volunteers have the freedom of unlimited time to nurture and develop relationships with nursing home residents (Damianakis et al., 2007; Musson et al., 1997, 1990), however, what about the staff, how do they view volunteers and volunteerism? Claxton-Oldfield, Hastings, & Claxton-Oldfield (2008) offers some insight into staff attitudes about and relationships with volunteers. While there is little in literature about this topic specifically examining staff and volunteer relationships in nursing homes, the Claxton-Oldfield et al., (2008) study targeting palliative care environments provides some clues as to what attitudes and perceptions may exist between nursing home staff and volunteers in long-term care facilities.

Claxton-Oldfield et al., (2008) in examining the attitudes of nursing staff towards volunteers found that nursing staff believed that there are tasks appropriate for volunteers. Those activities included "non-hands-on" activities such as bereavement support, emotional support and socialization (Claxton-Oldfield et al., 2008). Nurses reported that volunteers made their jobs easier because of the emotional and social support that the volunteers were providing (Claxton-Oldfield et al., 2008). However, the nurses were not in agreement as to giving volunteers access to resident health

information. Claxton-Oldfield et al., (2008) suggested this was due to the fact that the nurses were not aware of the training the volunteers had received. The nurses did agree however, that volunteers should have input into the nursing home resident's care plan, (Claxton-Oldfield et al., 2008). Similarly, van der Ploeg et al., (2012) reports that care staff saw the volunteer-nursing home resident relationship as beneficial and that volunteers were viewed as an "extra set of hands."

Conversely, Berta et al., (2010) found that some nurses viewed volunteers as "one more thing to manage," and having an adverse effect on the efficiency of the nursing home. Gross (1961) suggests that resistance to embracing volunteerism in the nursing home may be based in a fear of tensions that may emerge between volunteers and care staff. Training care staff to recognize the value of the volunteer to the nursing home may promote positive staff and volunteer relationships and see the volunteer as part of the care team (Claxton-Oldfield et al., 2008).

The National Nursing Home Survey-2004 (United States Department of Health and Human Services, National Center for Health Statistics, 2004) contains data on ten volunteer activities to include volunteers making social visits to nursing home residents, assisting residents write letters, providing transportation, conducting religious services, providing clerical support, feeding residents, providing snacks and water for the residents, leading recreational activities such as bingo, providing personal cares i.e., grooming and dressing residents, and finally providing "other duties," (United States Department of Health and Human Services, National Center for Health Statistics, 2004). The factor structure of these activities as well as their causal antecedents and outcomes has been little studied. This study found some empirical support for a 2-factor structure

consisting of "Volunteer provides Socialization" and "Volunteer provides Staff Support" – based on an exploratory structural equation model (ESEM) that will be described in Chapter 3, Methodology and Chapter 4 results.

Measuring Quality of Care

The purpose of this study is to examine the impact of a nursing home volunteer program on the average number of hours that nursing staff spend with a nursing home resident each day. The Centers for Medicare and Medicaid Services (CMS) using health inspection reports, staffing reports and data collected from nursing homes using the Minimum Data Set 3.0 (MDS 3.0) developed a nursing home rating system that assigns an overall score to each nursing home indicating the overall quality level of care provided by the nursing home (Centers for Medicare and Medicaid Services, 2012a). The CMS assigns one to five stars based upon the outcomes of these measures. One star indicates the poorest of care and five stars indicates the best of care. These results are posted at the CMS website to aide consumers in their decision making process as to which nursing home would be of most benefit to their loved-one.

Of interest in this study are staffing reports. While quality measures are used in the calculation of the CMS nursing home rating system, staffing reports may provide an even better assessment of quality of care. Quality measures are addressed first followed by staffing reports.

Quality Measures

Using data from the MDS 3.0, the CMS developed 18 quality measures (QMs). Four QMs concern residents with short stays and the remaining 14 QMs concern nursing home residents staying in a nursing home more than six months (Centers for Medicare

and Medicaid Services, 2012b). The 14 QMs include incident rates for pressure sores, the use of psychoactive medications without a diagnosis warranting their use, the incident rate for extreme weight loss or gain, the number of residents who are physically restrained, the incident rate for incontinence and the use of catheters, the incident rate for urinary tract infections (UTIs), the incident rate for depression, the incident rate for residents experiencing loss of mobility, the percentage of residents who spend most of their waking time in a chair or in a bed and the incident rate for residents experiencing severe pain (Centers for Medicare and Medicaid Services, 2012a).

Staffing Reports

In addition to the 18 QMs used by the CMS to rate a facilities quality of care, are staffing reports generated by each nursing home facility. These staffing reports are used in the calculation of the facility's overall quality of care rating. Through several studies, a clear and direct relationship has been found between staffing levels of nursing homes and the reported scores of those quality measures, thus staffing levels are directly related to the quality of care a nursing home resident receives (Abt Associates Inc., 2001; Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000; Munroe, 1990; Nyman, 1988; Spector & Takada, 1991). Nursing homes are required to report their staffing levels to CMS and that data is collected in several databases to include, the Minimum Data Set 3.0 (MDS 3.0), the On-Line Survey Certification and Reporting System (OSCAR) and the Certification and Survey Provider Enhanced Reports (CASPER). Nursing Home Compare determines their rating for staffing using CASPER and calculates staffing levels according to the average number of hours nursing staff spend with each resident each day or hours per patient day, (HPPD), (Centers for Medicare and

Medicaid Services, 2012a). The calculation for hppd does not include non-nursing staff such as administrators, housekeeping, nurses hired privately by a family, hospice care and so on (Centers for Medicare and Medicaid Services, 2012a). Included in hppd are the hours of the registered nurses, (RNs), licensed practical nurses, (LPNs), certified nursing aides, (CNAs) and medication aides/technicians, and finally aides in training (Centers for Medicare and Medicaid Services, 2012a). The hours per patient day is calculated by summing the total number of hours for staff for a 24-hour period and then dividing that number by the number of residents living in the nursing home.

Federal guidelines through the Omnibus Budget Reconcillation Act of 1987 (OBRA 1987) attempts to specify minimum staffing for nursing homes but falls short due to ambiguous wording such as "sufficient number" and a one-size fits all mentality, in that the guidelines do not take into account the number of residents being served nor their unique levels of care, i.e., case mix (Centers for Medicare and Medicaid Services, 2012a). Subsquent discussion and debate led the CMS to launch a study conducted by Abt Associate, Inc (Abt Associates Inc., 2001). The study was found to be methodologically unsound in that the sample size was not representative of the long-term care population and so a second study was conducted (Tilly, Black, Ormond, & Harvell, 2003). The second study, "Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes: Report to Congress Phase II Final," (Abt Associates Inc., 2001), had a larger representative sample size, N=5,000 from ten states. Comparing overall ratings of nursing homes and their reported nursing hours per patient, the results of the second study determined that nursing homes should be providing 4.1 hours per patient day (Abt Associates Inc., 2001).

Simply adding staff however may not be enough. Researchers caution by pointing out that other factors such as organizational structure, i.e, for-profit versus nonprofit ownership, the number of beds in the facility, and the sources of reimbursement relied upon by the nursing home for services provided can influence quality of care as well (Berta et al., 2010; Harrington, Zimmerman, et al., 2000; Munroe, 1990) . For example, Medicare residents provide higher reimbursement rates than Medicaid residents and therefore have more financial resources leading to more staffing and lower deficiencies (Harrington, Zimmerman, et al., 2000; Munroe, 1990). Harrington et al., (1999, 2000) found that smaller facilities, i.e., less than 100 beds, nonprofit facilities, and facilities that were not part of a chain had better staffing levels adding that staffing levels should also take into account the complexity of care that the residents need, i.e., case mix. For profit facilities that are publically traded have to answer to their stockholders who may or may not agree to increases in personnel but rather prefer to choose higher profit margins (Harrington, Zimmerman, et al., 2000) resulting in poorer quality of care.

Finally, researchers continue to examine just what are proper staffing levels (Harrington, Zimmerman, et al., 2000). Nevertheless, Bostick et al., (2006) in his review of 87 studies found that they agreed that staffing levels and quality of care were directly related and that the hours per patient day ranged from 2.65 to 4.8 hours per patient day. While QMs are used to score facilities quality of care, Bostick et al., (2006) argues that collecting and analyzing data on hours per patient day (hppd) provides the best means for making comparisions among nursing homes (Bostick et al., 2006). The variable for hours per patient day is available in the DS1 and will be used at the outcome measure for quality of care (see Figure 1).

Organizational Characteristics of Long-Term Care Facilities

The Medical Model versus Social Model of Care

Historically, long-term care facilities follow the medical model for providing care to their patients (Shield, 1990). With increasing emphasis on reducing the use of psychoactive medications to manage patients (M. Brown, Lapane, & Luisi, 2002; Cody, Beck, & Svarstad, 2002; Hughes & Lapane, 2005; Stewart, May, Moore, & Hale, 1989; U.S. Health Care Financing Administration (HCFA)., 1995), nursing homes are moving towards a social model of care in which the care takes into account the unique needs of residents and their quality of life (Shield, 1990). These models co-existing side-by-side in a facility can create tensions among the staff as each member has differing viewpoints as to how to provide for their patient. First, physicians and nurses operate in the medical model, second, social workers operate in the social model, and thirdly, the nurse aides are working to maintain the patient's level of functioning (Shield, 1990).

Targeted by these competing models is the nursing home resident who, as a result, is likely experiencing loss of control, loss of his or her "human-ness," loss of dignity, loss of identity, loss of continuity, and finally a declining sense of overall life satisfaction (Pearson, Hocking, Mott, & Riggs, 1993). This loss of control or relinquishing control to the staff may lead to institutionalized behaviors such as apathy, depersonalization, and dependency (Stirling & Reid, 1992). These series of losses lead to nurturing fear in the resident as the staff over powers the resident (Pearson et al., 1993) "socializing them into the role of patient," (Smithers, 1990) by insisting that the patient remain in a wheelchair lower than staff where making eye-contact is difficult (Smithers, 1990) further dehumanizing the person. In this posture, i.e., confined to sitting, the communication

between the patient and the staff is stifled, accompanied by fear of reprisal by the staff (Koch, 2006). Eventually the patient surrenders to the routine of the nursing home believing, that "...indeed, I am sick," (Donnenwerth & Petersen, 1992).

Ownership Types

Research shows that the long-term care facility type of ownership, (see Figure 1) i.e., for-profit versus non-profit impacts staffing levels, the use of volunteers, and ultimately the quality of care provided by the long-term care facility, (Berta, Laporte, & Kachan, 2010; Bostick, Rantz, Flesner, & Riggs, 2006; Chou, 2002; Harrington, Kovner, et al., 2000; Harrington, Swan, Mullan, & Carrillo, 1999; Moss & Remsburg, 2005; Munroe, 1990). Nonprofit long-term care facilities are more likely to provide care stemming from altruistic motivations, while for-profit facilities may be more inclined to cut corners in providing care (Chou, 2002). Chou, (2002) using the incident rate for decubitus ulcers, dehydration and urinary tract infections (UTIs) to measure quality of care found that when family members are involved in monitoring the care of their loved-one, there were no significant differences between the quality of care provided by either the for-profit or the nonprofit facility. However, when family involvement was not present, the difference in quality of care between the two types of ownership was significant (Chou, 2002) indicating that for-profit facilities when not monitored by outside advocates such as families, lack the incentive to provide quality care. Similarly, Munroe (1990) found that nonprofit long-term care facilities had overall fewer deficiencies as compared to for-profit facilities (Munroe, 1990).

For-profit long-term care facilities that are publicly traded have a responsibility to their stock-holders who may prefer higher profit margins rather than maintaining

adequate staffing ratios (Harrington, Kovner, et al., 2000). The research shows that nonprofit facilities have higher staffing ratios (Harrington et al., 1999, 2000). Similarly, Moss & Remsburg (2005) found that for-profit long-term care facilities had fewer full-time staff, 57 full-time staff per 100 residents versus 63 full-time staff per 100 residents. As a result, for-profit long-term care facilities experience higher turnover rates than nonprofit long-term care facilities (Abt Associates Inc., 2001; Bostick et al., 2006).

Nonprofit long-term care facilities are more likely to use volunteers to supplement staff functions (Berta et al., 2010; Moss & Remsburg, 2005). Moss & Remsburg (2005) found that the use of volunteers increased from 1985 to 1999; but that the way in which the volunteers could be utilized would be limited by the Omnibus Reconciliation Act of 1987. The act directed that only certified nurse aides (CNAs) could provide activities of daily living (ADLs) support to residents, i.e., bathing, toileting, feeding, etc. However, from the literature and data collected in the National Nursing Home Survey- 2004, it is evident that nursing homes are relying on volunteers to supplement their staff but the actual activities in which the volunteers are engaging may not be clearly evident from the data collected, (Moss & Remsburg, 2005).

Chain versus Independent Long-Term Care Facilities

In 1985, long-term care facilities belonging to chains utilized volunteers more so than independent facilities (Moss & Remsburg, 2005). However, by 1999, independent facilities had caught up with the chains and were using volunteers at about the same level (Moss & Remsburg, 2005). Whether a long-term care facility belongs to a chain or whether it is an independent operation was not found to be predictor of the quality of care provided (Berta et al., 2010). However, Berta et al., (2010) did find that the

facilities that belonged to a chain and the facilities that were independent used volunteers at about the same rate and that there was little difference the types of activities in which the volunteers engaged.

Size of Facility

Berta et al., (2010) in their multi-case study found that the size of a facility has an impact on the quality of care provided to the nursing home resident. Administrators of larger facilities interviewed in this study reported that while they were able to provide more amenities, the larger number of people being served may have a negative effect on the quality of service (Berta et al., 2010). It was found that larger facilities relied more heavily on volunteers to provide those amenities that the facility offered (Moss & Remsburg, 2005).

Statistically, the incident rate for pressure ulcers, use of restraints and the incident rate for survey deficiencies is significantly less in smaller facilities than for larger facilities (Berta et al., 2010; Munroe, 1990) and that staffing ratios i.e., hours per patient day are better in smaller facilities. Berta et al., (2010) suggests that the capacity of the staff to meet the personal and unique needs of the nursing home resident diminishes as the size of the facility increases. Larger facilities may mean that there are more residents experiencing dementia leading to behavior problems thus increasing the burden of the staff, drawing them away from providing more personalized care of their patients (O'Connor et al., 2009). As a result of the patient's personal needs going unmet, the patient becomes less satisfied with their care, withdrawn and less active (Greenwald & Linn, 1971; Jacelon, 1995; Pearson et al., 1993). With that, one would expect then that larger facilities would have higher incident rates of depression, but the review of the

literature shows, ironically, quite the opposite. For instance, Harrington, Zimmerman, Karon, Robinson, & Beutel (2000) found that the incident rate for depression was higher in smaller facilities even though nursing home inspection teams found fewer deficiencies, i.e., violations of regulations.

Harrington et al., (2000) suggest that this unexpected finding is due to the increased likelihood of intimate relationships being found among nursing home residents and staff in smaller facilities. The smaller number of residents allows nursing staff to know and understand their patients on a more intimate level leading to increased recognition and treatment of depression (Harrington, Zimmerman, et al., 2000) while in large homes even though the incident rate for depression in large nursing homes may be the same or higher, the depression goes undiagnosed and therefore depression is underreported in larger facilities. This suggested explanation is supported by Berta et al., (2010) who found that smaller facilities allow for more intimate staff and patient relationships.

In 1985, the larger nursing homes, that is, homes with more than 100 beds were more likely to use voluntary workers (Moss & Remsburg, 2005). They explain that large facilities are more likely to be located in heavily populated areas and therefore more visible to the public thereby attracting more volunteers (Moss & Remsburg, 2005). Moss & Remsburg (2005) found that larger facilities were using their volunteers to support both staff and nursing assistant functions. Gross (1961) suggested that larger facilities are likely to have better educated staff and therefore more likely to recognize the value of a volunteer program. However, by 1999, small facilities were using volunteers as much as the larger facilities (Moss & Remsburg, 2005).

Source of Payment - Medicare and Medicaid

Medicare provides for the health care of nearly every person over the age of 65, with a work history of at least ten years (Grabowski, 2007). Medicare provides financial support for the first 100 days of long-term care (Grabowski, 2007) usually for the purposes of rehabilitating a person who is recovering from a surgery or some other condition from which the person is expected to recover. For persons who are living at or near poverty levels, that is having $2000 or less in assets, excluding their home, long-term care is paid for by the Medicaid program (Grabowski, 2007). While both programs have incentives to control the costs of care, neither program has incentives to provide quality care (Grabowski, 2007). Medicare reimbursement rates are higher than Medicaid rates for services provided (Munroe, 1990). Therefore, long-term care facilities relying more heavily on providing care for persons using Medicare for payment have more financial resources which in turn leads to better staffing ratios and lower deficiencies (Munroe, 1990). In the same vein, Harrington, Zimmerman, et al., (2000) found that long-term care facilities relying more heavily on Medicaid for payment had higher rates of deficiencies.

A variety of tasks are performed by the long-term care facility to support the patient. These tasks that are routinely provided by the facility must meet Medicare and Medicaid criteria as to their qualification for reimbursement (Litwak, 1985) otherwise those tasks that are not clearly supported by Medicare or Medicaid for reimbursement are relegated to others outside of the long-term care organization to provide or they are abandoned all together (Litwak, 1985). The implication is that activities associated with

socialization of the resident are not income producing activities and therefore do not take priority in the considerations of services provided.

Hypothesized Model

The hypothesized model is shown in Figure 1. Causal paths are annotated with " + - ?" indicating hypothesized results of the data analysis based upon the review of literature. The dashed lines indicate, based upon the review of literature, no causal effect is expected to be found. Analysis of the data will focus on whether organizational structure based on five indicators, i.e., belonging to a chain, profit-orientation, their primary source of payment (Medicare or Medicaid), the number of beds available, and the amount of volunteers, i.e. the number of volunteers visiting each week and the number of days the volunteers visit the facility, along with the kinds of activities volunteers engage in while at the nursing home will predict the average number of hours staff are spending with the nursing home residents represented in the variable "Nursing Hours per Patient". This study examines then the direct and indirect effects of organizational structure on the hours nursing staff spend with nursing home residents; how the organizational structure affects the amount of volunteers present in a nursing home, the activities in which volunteers engage and subsequently how volunteer activities affect the number of hours care staff spend with each patient.

Summary

Volunteers within the long-term care facility, not part of the paid workforce, not constrained by time clocks, or pressured by heavy workloads may provide the opportunity for valuable and necessary positive social activities, intimate relationships and staff support. As was noted in the literature review, volunteers likely have the

freedom to determine what to do with their time while in the facility and to spend as much time as they desire with a resident (Gross, 1961). In addition, the review of literature reveals that volunteers can be trained, desire training and relish their sense of mastery in providing both socialization activities and personal cares such as dressing, grooming and/or feeding the resident, thus reducing the workload for the staff.

In addition, the literature review shows that the organizational structure of the nursing home, i.e., for profit versus nonprofit, belonging to a chain or not belonging to a chain, the size of the nursing home, and payment sources predicts the amount of volunteer activity as well as how the volunteers are likely to be used see Figure 1. With the ongoing exponential growth of the population of older adults, increasing staffing pressures, and diminishing financial resources, the long-term care community should explore every avenue of support. Based upon this literature review, volunteers can be a viable and cost effective component to the providing quality care for older adults living in nursing homes.

The focus of this present study will be to examine, using structural equation modeling, the empirical relationships and possible causal paths between the kinds of activities in which volunteers engage while at the nursing home, the organizational structure of the nursing home, and the average number of hours nursing staff are providing to the nursing home resident, see Figure 1. The next chapter will delineate the methodology used in this study.

CHAPTER 3

METHODOLOGY

This study explores relationships between selected variables measured in the National Nursing Home Survey, 2004. The National Nursing Home Survey (NNHS) is a continuing series of national sample surveys of nursing homes, their residents, and their staff. All nursing homes included in this survey had at least three beds and were either certified (by Medicare or Medicaid) or had a state license to operate as a nursing home.

Sample and Procedure

Data for this study comes from the National Nursing Home Survey (NNHS), (United States Department of Health and Human Services, National Center for Health Statistics, 2004). Data was collected during the months of August through December from 1,174 long-term care facilities. In addition to collecting information on organizational structure, data was also collected on resident care from 13, 507 nursing home residents and 3, 017 nursing assistants. The nursing assistant data collection was the first time national data had been collected on this population.

The data is divided into three subsets of data. Dataset 1 (DS1) contains information collected through personal interviews with the nursing home administrators. DS1 contains information on the size of the nursing home, the types of services that are provided, the ownership type, i.e., whether it is a for profit or a nonprofit facility, whether the facility is part of a chain or independent, the percentage of Medicare and Medicaid patients in the facility, and data about the facility's volunteer program. The volunteer contains information about the frequency of volunteer visits, the number of

volunteers that visit weekly, and the types of activities in the which the volunteers engage while at the nursing home.

Dataset 2 (DS2) contains information about the nursing home residents to include demographic data, the types of care they need, the medications they are using, and other information concerning the resident. Information concerning the nursing assistants is contained in Dataset 3 (DS3) and includes such information concerning education, job satisfaction, burnout and turnover rates.

For purposes of this study, only the public data file - Facilities (DS 1) was used. Permission must be granted by the Center for Disease and Control (CDC) to have access to the restricted variables that link the three datasets. This procedure is in place to protect the privacy and identity of the participating facilities. Costs and the logistics of gaining access to these linking variables limited the scope of this study; however, the variables available in the DS1 may provide the foundation for future investigations on this topic.

Measures

Table 1 provides a list of the exogenous and endogenous variables used in the current study, including their response options and coding. Table 2 provides univariate statistical summaries for this set of variables.

Organizational Structure

As displayed in Figure 1, this study includes five variables from the NNHS – DS1, Facilities, to represent organizational structure. "Ownership type" refers to whether the facility is a for-profit or a nonprofit organization and is a binary variable (response options: 1 = for-profit; 2 = nonprofit). "Chain" is a binary variable that refers to whether the long-term care facility belongs to a chain of facilities or if it is a stand-alone facility

(response options: 1 = chain; 2 = stand-alone). In addition to the variables "chain" and "ownership type", the variables measuring the percentage of residents relying on Medicaid for their primary source of payment are "% Medicaid Patients" (response options range from 1 to 5, with 1 = 0-19% and 5=80% or more) and the percentage of residents relying on Medicare "% Medicare Patients" (response options range from 1 to 3; 1 = 0 to 9% and 3 = 20% or more). These variables are included as they indicate the length of stay by the resident and reimbursement rates associated with each source of payment.

Medicare only covers the first 100 days of long-term care. Nursing home residents relying primarily on Medicare are temporary residents of the nursing home and are likely recuperating from a surgery with the intention of leaving the nursing home at the end of their recovery. In addition, Medicare reimbursement rates are higher and therefore provide more revenue to the facility. On the other hand, Medicaid pays for long-term stays in nursing homes beyond 100 days. Nursing home residents relying primarily on Medicaid must have less than $2,000 in assets. Persons relying primarily on Medicaid for payment of their long-term care stay are living at or below poverty levels. Medicaid reimbursement rates are lower than Medicare reimbursement rates and therefore provide less revenue to the nursing home.

Finally, the fifth variable "Number of Beds" (response options range from 1 to 5, 1 = 3 to 49 beds and 4 = 200 or more beds) is included in this research because it indicates the size of the facility and may indicate the workload experienced by care staff i.e., more residents require more attention.

Table 2 shows that out of the 1,174 nursing homes surveyed, fewer than 50% have more than 100 beds, while just over 50% of them belong to a chain of nursing homes and that a majority of nursing homes have residents that rely on Medicaid rather than Medicare for payment. As to the type of ownership, i.e., whether the facility is for-profit versus nonprofit, the sample is made up of 60% for-profit. Examining the standard deviations for the organizational variables indicates good variance and they do not present problematic skews or kurtoses.

Amount of Volunteers

The number of volunteers visiting the long-term care facility "Number of Weekly Volunteers" (response options range from 0 to 70 or more) and the number of days volunteers come to the long-term care facility each week "Number of Days Volunteers Onsite" (response options range from 0 to 7) were included to indicate the amount of volunteers in a given facility. Referring to Table 2, the average number of days volunteers come to the nursing home is 4.18 and the average number of volunteers that come to the nursing home each week is 12.45. However the variances of these two variables are significantly greater than the other variables in this study's dataset. While the variances for the other variables range from 0.06 to 1.41, the variance for "Number of Days Volunteers Onsite" is 5.11 and "Number of Weekly Volunteers" is 197.15.

Muthen & Muthen (2010) note that this is of particular importance when dealing with models using both categorical and continuous data. The variable "Number of Weekly Volunteers" was transformed by dividing the values of "Number of Weekly Volunteers" by 30 bringing the ratio of this variance to within the acceptable range of 1 to 10 with the remaining variables in this study. Similarly, the variance for "Number of

Days Volunteers Onsite" is 5.113 also exceeding the 1 to 10 ratio noted above and therefore the variable "Number of Days Volunteers Onsite was transformed by dividing the values for the variable by 2.

Types of Volunteer Activities

Ten dichotomous variables measured the presence or absence of certain activities in the nursing home, (response options 1 = No, 2 = Yes). They included: feeding the resident "Meal Assistance" , providing the resident with snacks and water "Offers Snacks," assists with dressing & grooming for the resident "Assists with Personal Cares," providing the staff with clerical support "Conducts Clerical Duties," provides other supports "Conducts Other Duties" (these "other" supports are not delineated in the data), volunteer provides transportation "Transports Residents," volunteer makes social visits to the residents of the nursing home "Makes Social Visits," the volunteer leads recreational activities "Conducts Recreational Activities," volunteer conducts religious activities "Conduct Religious Services" and the volunteer helps residents write letters "Assist with Letter Writing."

Important characteristics of these "volunteer duties" variables are highlighted here to include first, that these variables are categorical therefore the splits between the "yes" and "no" responses are an important consideration. Referring to Table 2, the ten "Types of Volunteer Activities" variables have acceptable splits. This means that the responses on any given variable i.e., "Yes" or "No" is not less than 5%, (Bentler, 2005) of the split. For example, the response set for "Assists with Letter Writing" (see Table 2) shows that 49.5% of the responses are "Yes" while 50.5% of the responses are "No." Similarly,

"Conducts Clerical Duties" (see Table 2) is split between the "Yes" and "No" response 84.5% versus 14.5%.

Two variables "Conducts Other Duties" and "Assists with Personal Care," (Table 2) exhibit problematic skews of -3.74 and -3.70 respectively and problematic kurtoses that exceed the value of 9, 11.99 and 11.69 respectively (Kline, 2011). However, no attempt is made to transform these two variables as the availability of categorical variable methodology (CVM), such as WLSMV allows accurate estimates of severely skewed and kurtotic data (Muthen, 1984). Finally, it should be noted that 247 facilities had missing data on all of these ten "Types of Volunteer Activities" variables.

Nursing Hours per Patient

"Nursing Hours per Patient" is an aggregate variable (see Table 2) whose content is an average number of all hours nursing staff at all levels, i.e., registered nurse (RN), licensed practical nurse, (LPN), certified nurse aide (CNA) and aide, (not certified) spend with the residents of the nursing home. The variable values range from one to six. One represents less than two hours spent with a patient per day and 6 represents 12 or more hours spent with a patient per day. The variable "Nursing Hours per Patient" is treated as a continuous variable. The fact that the mean of this variable is 2.84 indicates that the average nursing home is reporting nursing hours per patient day ranging from 2 to 4 hours per patient.

Data Analysis

SPSS (version 16) provided the univariate statistics for the study variables. Mplus (version 7) provided the structural equation modeling (SEM) software program for testing the measurement and structural model proposed in the current study.

The exploratory SEM (ESEM) module of Mplus using a robust weighted least square estimator (WLSMV) provided the nonlinear exploratory factor analysis (EFA) procedure required for testing the factor structure underlying the set of dichotomous indicators comprising the various volunteer duties. Standard (linear) EFAs are known to extract superfluous "methods factors," in addition to the substantive factors that may underlie a set of categorical measures, which is especially likely to occur when analyzing binary variables. Non-linear factor analysis procedures such as ESEM using WLSMV assume that a continuous and normally-distributed "latent response variable" underlies each "crudely-categorized" categorical variable. By factor analyzing the correlations among the latent response variables (in the case of binary categorical variables, replacing the Pearson correlations among the indicators with the tetrachoric correlations among the indicators), the non-linear factor analysis procedure provides a more accurate estimate of the number of substantive factors that the indicators form, more accurate parameter estimates (of factor loadings and correlations between factors), as well as more accurate (robust) estimates of standard errors (and corresponding statistical significance tests) for the parameter estimates, and more accurate global chi-square and subjective fit indices.

The Mplus ESEM procedure also allows an important additional test for the presence of correlated measurement errors created by "methods effects" (such as formed by indicators that have common wording) that might otherwise distort the results of the EFA by extracting (superfluous) non-substantive factors. The ability to model correlated measurement errors in an EFA represents an important methodological advance in testing measurement models that is currently unavailable in any other EFA software program. Although confirmatory factor analysis (CFA) does have this capability, CFA does not

perform well, where the number of factors underlying a set of measures is not well established (Brown, 2006).

To provide more rigorous tests of the measurement model for volunteer duties, the ESEM procedure also allows one to include an additional set of "external variables" – in the present case, the organizational structure, amount of volunteer activities, and quality of care variables that will ultimately form a full SEM analysis, when testing the proposed causal model represented in Figure 1. In this expanded measurement model, the external variables are allowed to correlate with the factors comprising the indicators for volunteer duties. Based on the results from this ESEM analysis, a simplified measurement model (that drops non-significant secondary factor loadings) provides the basis for conducting a CFA, also using the WLSMV estimator. Finally, the current study conducts a "full SEM" analysis (using the WLSMV estimator) to provide a test of the proposed causal model represented in Figure 1.

Missing Data

When using the WLSMV estimator provided by Mplus for analysis of categorical data, it is recommended that missing data be analyzed using Mplus multiple imputation procedure (MI) (Asparouhov & Muthen, 2010) outlined in the Mplus Manual (Muthen & Muthen, 2010). This procedure produces multiple estimates of the complete data.

MI provides less biased and more efficient parameter estimates than the listwise-deletion procedures typically used in EFA and regression analysis. Mplus MI is especially appropriate for the analysis of categorical data, given that its Bayesian-based MI procedure does not require the assumption of normally-distributed variables common to many other MI software programs.

In this study, 20 imputed data sets were so constructed and analyzed. The software then takes the average estimates of coefficients and standard errors to produce unbiased estimates of these values. If this procedure is not used, the results of using the WLSMV estimator alone will produced heavily biased results (Asparouhov & Muthen, 2010). For more details on this procedure see Asparouhov & Muthen, (2010) and Muthen & Muthen (2010).

Hypotheses: (See Figure 1)

1. Non-profit ownership will have positive direct effect on the amount of volunteer activities.
2. Non-profit type of ownership will have a positive direct effect on staff support type of volunteer activities.
3. The number of beds in a facility will have a positive direct effect on the amount of volunteering.
4. The amount of volunteers will have a positive direct effect on the types of volunteer activities.
5. The amount of volunteers will have a positive direct effect on the quality of care as indicated by nursing hours per patient.
6. The nursing home not belonging to a chain will have a positive direct effect on the quality of care (nursing hours per patient).
7. The type of ownership of the facility, i.e., for-profit versus nonprofit will have a positive direct effect on the quality of care (nursing hours per patient).
8. The percent of Medicaid patients will have a negative direct effect on quality of care (nursing hours per patient).

9. The percent of Medicare patients will have positive direct effect on quality of care (nursing hours per patient).
10. The number of beds will have a negative direct effect on the quality of care (nursing hours per patient).
11. Types of volunteer activities will have a positive direct effect on the quality of care (nursing hours per patient).
12. Whether the facility is part of a chain or not will not have a significant effect on the amount of volunteers or the types of volunteer activities.
13. Nonprofit type of ownership through amount of volunteers and types of volunteer activities will have a positive indirect effect on quality of care, (nursing hours per patient)
14. Nonprofit type of ownership through types of volunteer activities will have a positive indirect effect on quality of care, (nursing hours per patient).

CHAPTER 4

RESULTS

Sample characteristics

Frequencies for the Organizational Structure Variables

Frequencies for the five organizational structure variables can be found in Tables 3 through 7.

As shown in Table 3, the sample consisted of 1,174 nursing homes, 616 of which were part of a nursing home chain, and 558 did not belong to a chain. As shown in Table 4 of the 1,174 nursing homes, 707 were for-profit facilities while 467 were nonprofit entities. Table 5 shows the distribution of nursing home residents relying on Medicare as their primary source of payment for their long-term care stay while Table 6 presents the distribution of nursing home residents relying on Medicaid as their primary source of payment for their long-term care.

Nursing home payments come from several sources, one of which is Medicare. Of the nursing homes in this sample, as shown in Table 5, 54.5% of them report that 0-9% of their residents are relying on Medicare to pay for their long-term care, while a little less than one-third of the facilities, (32.0%), report that 10-19% of their residents are relying on Medicare and finally only 13.5% of the facilities report that 20% or more of their residents are relying on Medicare as their primary source of payment. Less than 1% (0.7%) of the facilities did not report this statistic.

Medicaid is a primary source of payment for the nursing homes in this sample, see Table 6. Of the 1,166 facilities reporting this statistic, 84.6% of the facilities report 40% or more of their residents are relying on Medicaid to cover their long-term care

expenses. Only 15.4% of the nursing homes report that less than 40% of their residents are relying on Medicaid as their primary source of payment, and within that number more than half, 55% report 19% or less are relying on Medicaid as their primary source of payment. Clearly nearly one-fourth or 22.3% of the facilities report that 80% or more of their residents are relying on Medicaid to cover their long-term care expenses.

A little more than half of the facilities in this sample had less than 100 beds, as Table 7 shows that 52.4% of the facilities provide 3 to 99 beds for residents, 41.3% of the nursing homes in this sample have 100 to 199 beds in their facilities and 6.3% of the facilities in this sample have 200 or more beds.

Frequencies for the Amount of Volunteers Variables

The number of days of the week volunteers are visiting the nursing home is shown in Table 8. Of the 920 nursing homes providing data for this statistic, 222 (24.1%) have volunteers onsite seven days each week, 346 facilities (37.6%) have volunteers visiting 3 to 6 days each week, 264 facilities (28.7%) have volunteers 1 to 3 days each week and finally, 88 facilities or 9.6% of the facilities do not have volunteers visiting each week.

Statistics for the number of volunteers that visit a nursing home weekly is shown in Table 9. The range of responses is from 1 to 70, where 70 represents 70 or more volunteers coming to the facility each week. 48.8% of the nursing homes in this sample have from 1 to 7 volunteers, 31.1% have 8 to 16 volunteers, 13.1% have 17-36 volunteers, 4.4% have 37 to 67 volunteers and 2.3 % of the nursing have 70 or more volunteers. Only 820 of the 1,174 facilities provided data for the variable “Number of Volunteers Visiting Weekly” or just fewer than 70%.

Frequencies for Types of Volunteer Activities Variables

Tables 10 through 19 present the frequencies for each of the ten types of volunteer activities. Only 927 of the 1, 174 or 78.9% of the facilities provided data for these variables. From the facilities that did report data for the types of activities that volunteers were engaging most do not have their volunteers involved in activities that would be considered staff support. For example, 85.5% reported that they do not use their volunteers in clerical duties (Table 10) and 86.5% reported that their volunteers do not assist residents at mealtime (Table 11). Similarly, 94% of the facilities do not let their volunteers provide personal cares (Table 12) nor do 74.5% of the facilities do not have their volunteers offer residents snacks or water (Table 13). A little more than one-third, 37.8% permit their volunteers to transport residents, (Table 14). The data include a variable that is somewhat nebulous as it measures volunteers "Conducts other duties," with 94% of the facilities reporting that their volunteers do not conduct "other duties, (Table 15). However, given the exploratory nature of testing a measurement model for a set of indicators (types of volunteer activities) not previously studied, this variable will be retained in the study.

Conversely, the types of volunteer activities that seem to provide socialization for the nursing home resident had opposite results meaning that the majority of nursing homes reported that 89.3% of their volunteers "Make social visits" (Table 16), 90.6% of the facilities have volunteers "Conduct recreational activities" (Table 17), and 83% report that their volunteers "Conduct religious services" (Table 19). Finally, responses for one variable were split evenly across the sample. Just over one-half or 50.5% of the facilities

reported that volunteers "Assist with letter writing" while 49.5% of the facilities report that their volunteers do not help with letter writing (Table 19).

Frequencies for Nursing Hours per Patient Variable

The frequencies for "Nursing hours per patient" are shown in Table 20. Of the nursing homes sampled, 74.4% provided 2 to 3.99 hours per patient day, with 14. 6% providing 4 to 11.99 hours per patient day, and 4.3% providing 12 or more hours per patient day. Finally, only 6.2% of those facilities responding offer less than 2 hours per patient day. Of the 1,174 facilities in this sample, 135 facilities did not provide data for this variable.

Exploratory Structural Equation Model (ESEM)

Exploratory structural equation modeling (ESEM) revealed latent factors that may underlie the ten "Types of Volunteer Activities" Four models were explored analyzing possible one to four factor solutions. The one factor solution exhibited a poor fitting model as evidenced by the global fit statistics as follows: χ^2 (107, N = 1,174) = 432.180, $p < .05$, root mean square of error approximation (RMSEA) = .051, comparative fit index (CFI) = .880., Tucker Lewis Index (TLI) = .829. The fit indexes reported here indicate how well the data fit the model. The cutoff value for excellent fit for RMSEA criteria is less than .06 (Browne & Cudeck, 1993). The cutoff value for excellent fit for for the CFI fit statistic are values of 0.95 or greater, (L. Hu & Bentler, 1999) as well as the TLI statistic. All fit indexes for the one-factor solution were outside of this criteria.

The three and four factor models while the global fit statistics were within acceptable limits, resulted in factors being extracted that could not be justified by logic of

content and the newly extracted factors had only one indicator. The outcomes of the 1, 3 and 4 factor solutions resulted in accepting the 2-factor solution.

The two-factor ESEM solution is shown at Figure 2 and factor loadings can be viewed at Table 21. The weighted least squares mean value (WLSMV) estimator was used. The factor loadings are standardized and only the significant paths and correlations are shown. The two-factor solution resulted in, first, a factor whose content indicated volunteer activities that were in support of the staff such as conducting clerical duties, meal assistance, offers snacks, assists with personal cares, transports residents, assists with letter writing and conducts other duties. This first factor is then named "Volunteer Provides Staff Support." The second factor to be extracted had three indicators whose content indicated activities that are associated with socialization of the nursing home residents. These indicators are conducts religious services, conducts recreational activities and makes social visits. This underlying latent factor is then named "Volunteer Provides Socialization." The standardized correlation between the two factors is .70 indicating that the two factors are representing unique content. Had the correlation between the two factors been closer to the value of 1, a perfect correlation then their discrimant validity would be in question. Therefore two distinct underlying latent factors for "Types of Volunteer Activities" are being observed through their associated indicators.

Seen in Figure 2 and in Table 21, the cross-loading of "Transports residents" is statistically significant and is retained in the model. Logic explains the cross-loading as transporting residents is a supporting staff activity but simultaneously provides an

opportunity for nursing home residents to socialize while on the bus and at their destination, i.e., a park, the zoo, etc.

Similarly, two correlated measurement errors were indicated as well. "Meal assistance" and "Offers snacks" are allowed to correlate as the covariance may be the result of the methods effect of common wording. In addition, the correlated measurement error between "Assists with letter writing" and "Makes social visits" is also supported by the logic that a volunteer helping a nursing home resident write a letter would also likely include the volunteer and the nursing home resident socializing.

Confirmatory Factor Analysis

Taking the results from the ESEM, a confirmatory factor analysis was conducted, see Figure 3. The CFA model tests the validity of the ESEM results in that only the significant factor loadings, cross-loadings and correlated measurement errors are retained for use in the CFA (Brown, 2006) At this stage of analysis, exploring possibilities is now complete and the CFA model "confirms" the discrimant validity of the factors (Brown, 2006). As seen in Figure 3, the correlation between the two latent factors "Volunteer provides socialization" and "Volunteer provides staff support" is now .51. This indicates that the discriminant validity of the two factors is now stronger than in the ESEM. The fit indexes for the CFA model are within acceptable ranges, $\chi^2 = 200.044$, *d.f.* = 95, $p <$ .05; *RMSEA* = .031, CFI = .961; *TLI* = .938; N = 1,174. The weighted least squares mean value (WLSMV) was the estimator used. Factor loadings and coefficients are standardized. Moving forward to the structural equation model, this CFA will become the measurement portion of the following SEM.

Structural Equation Model

Figure 4 depicts the structural equation model (SEM). The CFA model becomes the measurement portion of the structural equation model (SEM). The SEM examines the direct and indirect effects between the exogenous and endogenous variables "belongs to a chain" "ownership type," % Medicaid patients," "% Medicare patients," "Number of beds", "Number of volunteers visiting weekly," "Number of days volunteer visit," "Types of Volunteer Activities," and "Nursing hours per patient." Table 22 shows the direct, indirect and total effects for the SEM. The fit indexes for the SEM are within acceptable ranges, $\chi^2 = 200.044$, *d.f.* = 95, $p < .05$; *RMSEA* = .031, *CFI* = .961; *TLI* = .938; N = 1,174. The weighted least squares mean value (WLSMV) was the estimator used. Factor loadings are standardized. Only statistically significant paths and correlations are shown in Figure 4.

Analysis of Hypotheses

Following is an analysis of the results for each of 14 hypotheses presented on page 35 and 36 of Chapter 3 Methodology.

Hypothesis 1: *Non-profit ownership will have a positive direct effect on the amount of volunteer activities.*

This hypothesis is supported. The variable "Types of ownership" (response options 1 = for-profit, 2 = nonprofit) had a positive direct effect on both the "Number of days volunteers onsite," *ß (beta – standardized regression coefficient)* = .15, $p < .05$ and the "Number of volunteers visiting weekly," *ß* = .21, $p < .05$. This result indicates that nonprofit facilities are more likely to have more volunteers visiting throughout the week and that their numbers of volunteers are greater than for-profit facilities.

Hypothesis 2: *Non-profit type of ownership will have a positive direct effect on staff support of types of volunteer activities.*

This hypothesis is supported. The variable "Type of ownership" had a positive direct effect on "Volunteer Provides Staff Support," ß = .30, $p < .05$. From this result, nonprofit facilities are more likely to use their volunteers to provide support to the staff in performing clerical duties, feeding residents, providing transportation, assisting with meals, offering snacks, assisting in letter writing, and other duties (see Figure 4).

Hypothesis 3: *The number of beds in a facility will have a positive direct effect on the amount of volunteering.*

This hypothesis is supported by the findings of this study. The variable "Number of beds" had a positive direct effect on both the "Number of days volunteers onsite," ß = .20, $p < .05$ and "Number of volunteers visiting weekly," ß = .31, $p < .05$. From these results, we see that as the number of beds increases in the nursing home, the number of days that volunteers are onsite and the number of volunteers visiting that facility increases.

Hypothesis 4: *The amount of volunteers will have a positive direct effect on the types of volunteer activities.*

This hypothesis is supported. Both variables "Number of days volunteers onsite" and "Number of volunteers visiting weekly" have positive direct effects on both "Volunteer Provides Socialization" and "Volunteer Provides Staff Support" (see Figure 4). "Number of days volunteers onsite" has positive direct effects on "Volunteer Provides Socialization" and "Volunteer Provides Staff Support" ß = .26, $p < .05$ and ß = .25, $p < .05$ respectively. "Number of volunteers visiting weekly" has positive direct effects on

both "Volunteer Provides Socialization" and "Volunteer Provides Staff Support," ß = .49, $p < .05$ and ß = .16, $p < .05$ respectively. It should be noted that while "Number of days volunteers onsite" had nearly equal positive effects on "Volunteer Provides Socialization" and "Volunteer Provides Staff Support," "Number of volunteers visiting weekly" had a larger positive direct effect on "Volunteers Provide Socialization," ß = .49, $p < .05$ and ß = .16, $p < .05$. These results show that as the number of volunteers increases, volunteer activity increases and that the activities are more likely to involve socialization type activities.

Hypothesis 5: *The amount of volunteers will have a positive direct effect on the quality of care (nursing hours per patient).*

Hypothesis 5 is not supported. The effect of "Number of days volunteers onsite" and the effect of "Number of volunteers visiting weekly" did not have a statistically significant positive direct effect on the quality of care as indicated by the variable "Nursing hours per patient," ß = -011, $p > .05$ and ß = .174, $p > .05$.

Hypothesis 6: *The nursing home not belonging to a chain will have a positive direct effect on the quality of care (nursing hours per patient).*

The hypothesis is supported. Whether the nursing home "Belongs to a chain" had a positive direct effect on the quality of care, ß = .10, $p < .05$. This means that nursing homes that do not belong to chains are more likely to provide better care.

Hypothesis 7: *The type of ownership of the facility, i.e., for-profit versus nonprofit will have a positive direct effect on the quality of care (nursing hours per patient).*

This hypothesis is not supported. The "Ownership type" i.e., for-profit versus nonprofit did not have a statistically significant positive direct effect on the quality of care, $ß = -.05$, $p > .05$.

Hypothesis 8: *The percent of Medicaid patients will have a negative direct effect on the quality of care (nursing hour per patient)*

The hypothesis is not supported. While "% of Medicaid patients" did have a negative direct effect on the quality of care, $ß = -.04$, $p > .05$, the effect is very small.

Hypothesis 9: *The percent of Medicare patients will have a positive effect on the quality of care (nursing hours per patient).*

This hypothesis is supported. The "% of Medicare patients" did have a positive direct effect on quality of care, $ß = .10$, $p < .05$. This would indicate that as the percentage of residents relying on Medicare increases the nursing hours per patient increase as well indicating higher quality of care.

Hypothesis 10: *The number of beds will have a negative direct effect on the quality of care (nursing hours per patient).*

This hypothesis is not well supported. The "Number of beds" had a negative but small direct effect on the quality of care (nursing hours per patient), $ß = -.09$, $p < .05$.

Hypothesis 11: *Types of volunteer activities will have a positive direct effect on the quality of care (nursing hours per patient).*

This hypothesis is supported in part. The ESEM (Figure 1) and subsequent CFA (Figure 2) supported a two-factor model for "Types of Volunteer Activities." The two

underlying latent factors "Volunteer Provides Socialization" and "Volunteer Provides Staff Support" have opposite and direct effects on "Quality of Care" (nursing hours per patient). "Volunteer Provides Socialization" has a negative direct effect on "Quality of Care" $ß = -.32$, $p < .05$ while "Volunteer Provides Staff Support" has a positive direct effect on "Quality of Care" $ß = .25$, $p < .05$. From these results, it can be seen that volunteers engage in socialization activities more so than staff support activities yet the direct effects have opposite effects on nursing hours per patient.

Hypothesis 12: *Whether the facility is part of a chain or not part of a chain will not have a significant effect on the amount of volunteers or the types of volunteer activities.*

This hypothesis is supported. The variable "Belongs to a chain" did not have a statistically significant effect on either "Number of days volunteers onsite" or "Number of volunteers visiting weekly," $ß = .022$, $p > .05$ and $ß = .009$, $p > .05$ respectively. Likewise "Belongs to a chain" did not have a statistically significant effect on "Volunteer Provides Socialization" or "Volunteer Provides Staff Support," $ß = .026$, $p > .05$ and $ß = .009$, $p > .05$ respectively.

Hypothesis 13: *Nonprofit type of ownership through amount of volunteers and types of volunteer activities will have a positive indirect effect on quality of care (nursing hours per patient).*

This hypothesis is not supported. The total indirect effects were statistically significant but very small. The indirect effect of "Types of Ownershp" through "Number of days volunteers onsite" through "Volunteers Provide Socialization" to "Quality of Care" $ß = .01$, $p < .05$. The indirect effect of "Types of Ownershp" through "Number of volunteers visiting weekly" through "Volunteers Provide Socialization" to "Quality of

Care" ß = -.03, $p < .05$. The indirect effect of "Types of Ownershp" through "Number of days volunteers onsite" through "Volunteers Provide Staff Support" to "Quality of Care" ß = .009, $p < .05$. Finally, The indirect effect of "Types of Ownershp" through "Number of volunteers visiting weekly" through "Volunteers Provide Socialization" to "Quality of Care" ß = .008, $p < .05$. The total indirect effect of "Ownership types" all paths was ß = .09, $p < .05$ see Table 22.

Hypothesis 14: *Nonprofit type of ownership through types of volunteer activities will have a positive indirect effect on quality of care (nursing hours per patient).*

The hypothesis is supported in part. "Types of Volunteer Activities" have two underlying latent factors "Volunteers Provide Socialization" and "Volunteers Provide Staff Support" (see Figure 3). As a result, the two underlying latent factors behaved differently with "Quality of Care." The indirect effect of "Ownership type" through "Volunteer Provides Socialization" to "Quality of Care" was negative, ß = -.005, $p < .05$, while "Ownership types" through "Volunteer Provides Staff Support" to "Quality of Care" was positive, ß = .08, $p < .05$. However, the values are extremely small and therefore not significant.

CHAPTER 5

DISCUSSION

The purpose of this study was to examine the direct and indirect effects of three constructs, 1) the organizational structures of long-term care facilities, 2) the amount of volunteers in nursing homes and 3) the types of activities in which volunteers engage on the nursing home quality of care as measured by nursing hours per patient. Variables from the dataset one (DS1) of The National Nursing Home Survey (United States Department of Health and Human Services. National Center for Health Statistics, 2004) were used for this analysis, $N = 1{,}174$. Advanced statistical analysis employing structural equation modeling (SEM) was used to analyze both the direct and indirect effects of organizational structure on the amount of volunteers in a nursing home, i.e., the number of volunteers that visit the facility each week and the number of days volunteers are onsite at the nursing home. In turn direct and indirect effects were analyzed for the amount of volunteers on the types of activities volunteers engage in while at the nursing home and the quality of care indicated by the measure of nursing hours per patient. Finally, direct and indirect effects of the five organization structure variables on quality of care as indicated by nursing hours per patient were analyzed.

The review of literature revealed that this is the first of its kind study examining these particular relationships using sophisticated statistical state-of-the-art techniques. These techniques included exploratory structural equation modeling (ESEM) see Figure 2 followed by a confirmatory factor analysis, (CFA) see Figure 3 leading to the subsequent development of a structural equation model (SEM) shown in Figure 4. The analysis shows significant direct and indirect effects between the three constructs, i.e.,

organizational structure, amount of volunteers, types of volunteer activities and quality of care. Additionally, the results of this study affirm and reaffirm previous research examining the use of volunteers in long-term care facilities, the quality of care provided by the nursing home and the ability of organizational structures such as ownership, sources of payment and the size of the facility to affect quality of care. Finally, this level of analysis adds sound empirical evidence to both the findings in this study and previous studies that volunteers indeed impact the quality of care provided by a nursing home and in this particular study, quality of care indicated by number of hours nursing staff are spending with each nursing home resident.

Impact on Quality of Care

Organizational Structure

This study found that the organizational structure had direct and indirect effects on the amount of volunteers in a nursing home, the types of activities in which volunteers engage and quality of care. The following discussion addresses each of the five constructs of organizational structure referring to Figure 4.

Belongs to a chain.

This present study found that a nursing home belonging to a chain does not have a direct effect on either the amount of volunteers in a nursing home or the types of activities in which volunteers engage, see Figure 4. Prior research reaches the same findings. Berta et al. (2010) found little difference between the amount of volunteers i.e., frequency of visits and numbers of volunteers between facilities that were independently operating or facilities that belong to a chain. The only effect observed in the current study concerning belonging to a chain is a positive direct effect on quality of care, $ß = .10$, $p <$

.05 see Figure 4. This result indicates that nursing homes that do not belong to a chain provide better care. Harrington et al., (1999, 2000) through their research arrive at a similar conclusion, i.e., facilities not belonging to a chain have better staffing levels leading to more nursing hours per patient and therefore provide higher quality of care (Berta et al., 2010; Moss & Remsburg, 2005).

Ownership type.

In the current study, the ownership type i.e., for-profit versus nonprofit, did not have a direct effect on quality of care, $ß = -.05$, $p > .05$. This finding is in opposition with previous research that found that nonprofit nursing homes had better staffing ratios and therefore provided more nursing hours per patient which is an indicator of quality of care, (Berta et al., 2010). However, the type of ownership did have a direct positive effect on the amount of volunteers working in a nursing home both for the number of days volunteers are onsite" $ß = .15$, $p < .05$ and for the number of volunteers that visit weekly, $ß = .21$, $p < .05$, see Figure 4. This finding concurs with previous research. Nonprofit nursing homes operate from altruistic motivations rather than profit-oriented motivations (Berta et al., 2010; Bostick et al., 2006; Chou, 2002; Harrington et al., 1999; Harrington, Kovner, et al., 2000; Moss & Remsburg, 2005; Munroe, 1990). As a result nonprofit nursing homes have larger volunteer pools and their volunteers visit more frequently. Because for-profit nursing homes are beholden to stakeholders such as investors and stockholders they are less likely to promote services that are not reimbursable by Medicare or Medicaid (Litwak, 1985). Volunteers providing services to the nursing home are not reimbursable.

The type of ownership did produce small indirect effects on quality of care. Types of ownership through amount of volunteers through types of volunteer activities on quality of care was statistically significant but the effect size was small, $ß = .02$, $p < .05$. Likewise, the indirect effect of types of ownership through the underlying latent factor "Volunteers Provide Socialization" was small $ß = .05$, $p < .05$, and the indirect effect of types of ownership through the underlying factor "Volunteers Provide Staff Support" was small as well, $ß = .08$, $p < .05$. The total indirect effect of "Ownership type" on quality of care is small, $ß = .08$, $p < .05$.

In the current study, the type of ownership, i.e., for profit versus nonprofit does not directly affect quality of care but it does affect the amount of volunteers and the types of activities in which the volunteers engage. Nonprofit facilities will have fewer volunteers engaging in socialization activities and more volunteers engaging in staff support activities.

Sources of payment.

The percentage of residents relying on Medicaid as their primary source of payment did not have a direct effect on quality of care, see Figure 4. However, the percentage of Medicare patients did have a positive direct effect on quality of care, $ß = .10$, $p < .05$. The positive direct effect of the percentage of Medicare patients on quality of care is due to the higher reimbursement rates for Medicare which affords the nursing home more resources to include more staff and therefore more nursing hours per patient. One would expect that nursing homes relying heavily on Medicaid for payment would have less staff and thus fewer hours per patient. The finding that the percentage of Medicaid patients had no direct effect on quality of care is a matter for further research.

Figure 4 shows that both the percentage of Medicaid patients and the percentage of Medicare patients did not have direct effect on the number of days volunteers are onsite but both constructs had negative direct effects on the number of volunteers that visit weekly, ß = -.11, $p < .05$ and ß = -.13, $p < .05$, respectively. This could be explained in part from prior research. Nursing homes relying more heavily on Medicare for payment have more resources at hand and would be less reliant on volunteers for help (Harrington, Zimmerman, et al., 2000; Munroe, 1990). However, the finding in the current study, that the percentage of Medicaid patients has a similar negative direct effect, ß = -.11, $p < .05$ is difficult to explain. One would expect that a nursing home that has fewer resources would likely be more reliant on volunteers and therefore would have a positive direct effect on the number of volunteers visiting weekly. A possible explanation could be that nursing homes relying primarily on Medicaid do not have the staff or resources to adequately recruit and train volunteers. This finding requires further research.

Figure 4 shows that the percentage of Medicaid patients has a direct positive effect on Volunteer Provides Socialization and a negative direct effect on Volunteer Provides Staff Support $B = .15$, $p < .05$, and $B = -.11$, $p < .05$, Along the same line of reasoning, nursing homes relying more heavily on Medicaid in addition to not having the staff or resources to acquire volunteers, would not have the staff or resources to adequately train volunteers to fulfill staff support roles. Therefore, the volunteers in these facilities are engaged in socialization activities that require less training. The current study shows that the percentage of Medicare patients had no direct effect on the types of activities in which volunteers engage. Finally, Table 22 shows that the indirect effects of

both the percentage of Medicaid patients and the percentage of Medicare patients on quality of care is very small, ß = -.05, $p < .05$ and ß = .02, $p < .05$. And similarly, the percentage of Medicare patients indirect effects on both types of volunteer activities, i.e., socialization and staff support are small as well, ß = -.08, $p < .05$ and ß = -.04, $p < .05$. The percentage of Medicaid patient indirect effects on socialization activities and staff support activities are also small, ß = -.03, $p < .05$ and ß = -.07, $p < .05$, respectively.

These results would indicate that the percentage of Medicaid patients and Medicare patients both have a negative effect on the number of volunteers visiting the nursing and only the percentage of Medicaid patients has an impact on the types of volunteer activities in which volunteers engage.

Number of beds.

The direct effect of the size of the nursing home on quality of care as measured in the current study even though small nevertheless indicates that as the size of the nursing home increases indicated by number of beds the quality of care indicated by the nursing hours per patient decreases, ß = -.09, $p < .05$. This negative direct effect is supported by previous research in which Berta et al., (2010) found that as the size of the nursing home increases the incident rate for pressure sores, urinary tract infections, use of restraints increases and staffing levels are inadequate to meet the needs of the nursing home resident.

Unlike the percentage of Medicare and Medicaid patients, the number of beds in a nursing home has positive direct effects on both the number of days volunteers are onsite and the number of volunteers that visit weekly, ß = .20, $p < .05$ and ß = .31, $p < .05$ respectively. This finding concurs with Moss & Remsburg (2005) in which they found

that larger nursing homes were more likely to use voluntary workers and that because of their size they were more likely to be located in heavily populated urban settings that afforded them the opportunity to recruit more volunteers.

The current study found that the number of beds in a nursing home had no direct effect on the factor Volunteer Provides Socialization, (see Figure 4). However, the number of beds did have a positive direct effect on the factor Volunteer Provides Staff Support, $ß = .23$, $p < .05$. This finding, as well, concurs with Moss & Remsburg (2005) who found that larger nursing homes were using their volunteers to provide both staff and nursing functions.

Table 22 shows the indirect effects of number of beds on the types of activities in which volunteers engage. The number of beds has a positive indirect effect on staff support activities $ß = .10$, $p < .05$. Adding this to the direct effect of number of beds to staff support results in a total effect of $ß = .32$, $p < .05$. While there is no direct effect observed in this current study between number of beds and socialization activities, there is a positive indirect effect of number of beds on the factor Volunteers Provide Socialization, $ß = .15$, $p < .05$. This indirect effect of number of beds on Volunteers Provide Socialization can be explained by observing that, overall, volunteers will more likely be involved in socialization activities rather than in staff support activities (see Tables 10 through 19 for frequencies of types of volunteer activities).

The size of nursing home indicated in this study by number of beds does affect the number of days volunteers are onsite, the size of the volunteer pool and the types of activities in which the volunteers engage. However, the total indirect effects of number of beds on quality of care is small $ß = .01$, $p < .05$.

Amount of Volunteers

Following is a discussion concerning the results of the data analysis for the amount of volunteers in a nursing home and the frequency of their visits.

Number of Days Volunteers Onsite

The number of days volunteers are onsite had no direct effect on the quality of care indicated by the nursing hours per patient as seen in Figure 4. However, there are positive direct effects on both factors for types of volunteer activities, i.e., Volunteer Provides Socialization and Volunteer Provides Staff Support, $ß = .26$, $p < .05$ and $ß = .25$, $p < .05$. The fact that these effects are nearly equal in size is perplexing in that one would expect the size of staff support effect to be smaller based upon previous research and the frequency tables for the types of volunteer activities which show that the majority of nursing homes are using their volunteers to provide socialization rather than staff support, (See Tables 10-19). Lastly, the total negative indirect effect of the number of days volunteers are onsite on nursing hours per patient is small, $ß = -.02$, $p < .05$. Explaining these effects would be a topic for future research.

Number of Volunteers Visiting Weekly

As with the number of days volunteers are onsite, the number of volunteers visiting weekly did not have a direct effect on the quality of care represented by nursing hours per patient, $ß = .174$, $p > .05$. However, the number of volunteers visiting weekly did have positive direct effects on both factors of types of volunteer activities, i.e., Volunteer Provides Socialization and Volunteer Provides Staff Support, $ß = .49$, $p < .05$ and $ß = .16$, $p < .05$, (see Figure 4). Unlike the results for number of days volunteers are onsite, these direct effects reflect the fact that volunteers are more likely to be engaged in

socialization activities rather than staff support activities, (see Tables 10-19). While there is no direct effect of the number of volunteers visiting weekly on quality of care, there are significant indirect effects. The negative indirect effect of number of volunteers visiting weekly through Volunteer Provides Socialization on Quality of Care is $ß = -.16$, $p < .05$. The positive indirect effect of number of volunteers visiting weekly through Volunteer Provides Staff Support on Quality of Care is $ß = .04$, $p < .05$. These effects are again somewhat perplexing. Based on the previous research one would expect that more volunteers would mean more support for the staff both for socialization and for staff support activities. Rather, these results indicate that as the number of volunteers increase they will likely provide socialization activities which in turn will lead to a reduction in nursing hours per patient. Previous research has shown that socialization of the nursing home resident can mitigate behaviors and free staff to provide nursing care to more residents, (Van der Ploeg et al., 2012). This topic is dealt with in the following section discussing the direct effects of volunteer activities on quality of care.

Types of Volunteer Activities

The types of volunteer activities used in the current study were available in the National Nursing Home Survey-2004 (United States Department of Health and Human Services, National Center for Health Statistics, 2004). As was presented in Chapter 4 - Results, two underlying latent factors were revealed using exploratory structural equation modeling (ESEM) and confirmed through confirmatory factor analysis (CFA). The two factors, Volunteer Provides Socialization and Volunteer Provides Staff Support, controlling for organizational structure and amount of volunteers have direct effects on Quality of Care as measured using nursing hours per patient (see Figure 4). However, the

two factors exhibit opposite direct effects. While Volunteer Provides Staff Support has a direct positive effect on Quality of Care, $ß = .25$, $p < .05$, the factor Volunteer Provides Socialization has a negative direct effect on Quality of Care as measured by nursing hours per patient. Based on logic and previous research one would expect to find that socialization as well as staff support would both have positive direct effects on the quality of care a nursing home resident receives. But the results of this model indicate something quite different.

Going back to the literature may provide some clues as to these results. Previous research has found that lack of socialization can lead to negative behaviors in nursing home residents and that volunteers providing that needed socialization can mitigate the negative behaviors, (Claxton-Oldfield et al., 2009; Damianakis et al., 2007; Gross, 1961; Hickey et al., 2004; Kagan et al., 2001; Kong et al., 2009; Moss & Remsburg, 2005; Musson et al., 1990; Nagel & Cimbolic, 1988; O'Connor et al., 2009; van der Ploeg et al., 2012). However, even though volunteers can have a positive effect on the quality of care, planning and training are needed otherwise the volunteer force may create even more work for the care staff becoming a hindrance to quality of care rather than being an asset to the care staff (Berta et al., 2010; Cherry, 1993; Litwak, 1985). In addition, Berta et al. (2010) found that nurses viewed volunteers as "one more thing to manage." Claxton-Oldfield et al., (2008) posits that nursing staff also need training to recognize the value of volunteers allowing them to embrace volunteers as part of the team. It is this lack of training that may explain this negative direct effect of Volunteer Provides Socialization on Quality of Care. The quality and content of training volunteers receive at

the nursing home would be a topic for future research. In addition, the training nursing staff receive concerning volunteers would also be a future topic for research.

Finally, referring to Figure 4, the factor Volunteer Provides Staff Support has a positive direct effect on Quality of Care as noted above. Previous research shows that volunteers can be trained to provide staff support in the forms of clerical support, meal assistance, providing personal cares and so on. This positive relationship is likely the result of training. Volunteers receive training and are embraced by the care staff that recognizes that the volunteer has acquired the skills necessary to perform tasks which free the staff to perform the more technical duties of nursing. Those tasks when performed by the staff become routine and non-personalized whereas for the volunteer not working on the clock but performing these same tasks for altruistic reasons has as Gross (1961) observes, the luxury of time. Volunteers then provide the individualized and personalized treatment of nursing home residents that leads to a higher quality of care and a positive working relationship with nursing staff (Berta et al., 2010; Claxton-Oldfield et al., 2009; Cohen-Mansfield & Werner, 1997; Gross, 1961; O'Connor et al., 2009; van der Ploeg et al., 2012)

Summary

As observed in the results of the current study, the manner in which volunteers are utilized can have a positive or negative impact on the quality of care provided by the long-term care facility. Exploratory structural equation modeling (ESEM) revealed two underlying dimensions for types of volunteer activities i.e., Volunteers Provide Socialization and Volunteers Provide Staff Support. Previous research shows that volunteers can be trained to provide a variety of activities for the nursing home resident

and to support the staff. But the current study shows that it is those activities that involve staff support such as feeding, grooming, dressing and clerical support that have the greater and positive direct effect on the quality of care provided as measured by nursing hours per patient.

This current study is the first in the literature to explore this topic in this manner and the first to employ the sophisticated and elegant analysis provided by structural equation modeling and advanced statistical imputations provided by Mplus which allows for the factor analysis of binary data. The resulting measurement model found in Figure 3 is methodologically sound and is supported by previous research. However, unlike previous research it provides the opportunity to explore with a high degree of confidence relationships between organizational structure, the amount of volunteers, the types of volunteer activities and their direct and indirect effects on quality of care.

It is evident from the structural equation model found at Figure 4 that organization structure of the long-term care facility affects the amount of volunteers and the types of activities in which volunteers engage and the resulting impact on the quality of care provided. In at least one instance, the direct effects of an organizational characteristic such as bedsize that had a negative effect on nursing hours per patient could be reversed with the introduction of staff support volunteer activities. The structural equation model in the current study offers an empirical and unbiased view of these relationships.

Implications

Long-term care facilities regardless of organizational structure should consider promoting training programs that educate care staff as to the value of the nursing home's

volunteer program as well as evaluating their current volunteer training programs for effectiveness. Does the volunteer training program give the volunteers the skills and knowledge they need to be effective members of the care team? It is also shown in the literature that volunteers can be trained, they want to be trained, and that they enjoy the sense of mastery that comes with training allowing them to make a real difference in the quality of care provided. (Cherry, 1993; Damianakis et al., 2007; Gross, 1961; Hickey et al., 2004; Kagan et al., 2001; Musson et al., 1997, 1990; Nagel & Cimbolic, 1988). Long-term care facilities providing care staff training and volunteer training will likely reap the benefits of reduced labor costs, and lower turnover rates, while freeing the professional care staff to provide the more complex care tasks required by nursing home residents that are well beyond the skills of the volunteer (Litwak, 1985) and ultimately resulting in high quality care for the nursing home resident.

Future Research

With the sound measurement model presented in this study, research should be conducted to explore the relationships of other quality measures by adding them to the current model. Those quality measurements found in datasets 2 and 3 of the National Nursing Home Survey-2004 include the use of psychoactive medications, the incident rates for depression, the incident rate for decubitus ulcers, dehydration and urinary tract infections (UTIs), staff burnout, turnover rates and others.

In addition, future research could address questions posed by the results of this study such as: 1) the fact that both the percentage of Medicaid and Medicare patients has negative direct effects on the number of volunteers visiting weekly, 2) the type of ownership did not have a direct effect on the quality of care when previous research

indicates that type of ownership does have a direct effect on quality of care, and 3) the number of days that volunteers are onsite had nearly equal effect on both factors of volunteer activities.

Other topics of research would include examining the content and quality of training nursing home volunteers are currently receiving and examining the prevalence of and content and quality of training nursing staff receive concerning the value of the nursing home volunteer program. The volunteer data items in the National Nursing Home Survey should be edited to capture in more detail the activities in which volunteers engage. Specifically, the items "volunteers conduct other duties" and "volunteers provide personal cares." As a result of this study the activities in which volunteers engage appear to either promote or detract from the quality of care provided by the nursing home. This may be due in part to volunteers distracting nursing staff from their work. Untrained volunteers, while operating from an altruistic motivation may in fact become a burden to the professional care staff. The findings of this study highlight that volunteer training should include specific subject areas such as how to be work with staff, wheelchair techniques and walking with a person of unsteady gait, verbal and nonverbal communication techniques, and so on. The process should prepare the volunteer to the extent that they become a true asset to the staff rather than a distraction.

Limitations

The study was limited in several ways. First, the factor loadings on several of the indicators for the types of volunteer activities were nominal. The variable "Conducts other duties" is very general. It is unclear what those "other duties" may be. A similar observation applies to the variable "Provides personal cares." Knowing what those

"other duties" are and what "personal cares" are being provided would offer deeper insight into and more accurate analysis of volunteer impact on the long-term care environment. Therefore the psychometrics of the volunteer activities variables needs further investigation. It should also be noted that the cross-sectional non-experimental design of the current study cannot test the possibility that the causal sequences may be mis-specified.

Conclusion

This study provides empirical support for the view that organizational structure of a long-term care facility significantly impacts the volunteer activities that take place within such a facility. Nonprofit nursing homes are more likely than for-profit nursing homes to use their volunteers to supplement staffing needs. It may be worthwhile to examine those facilities that use their volunteers in this way to extract best practices, investigate volunteer and staff working relationships, and resident perceptions of their quality of care, in order to develop strategies for meeting increasing staff shortages in all long-term care facilities. Whether nonprofit facilities are taking advantage of their volunteers in this way needs further investigation. The finding that the types of volunteer activities had two substantive underlying factors leads to further questions about volunteer expectations and motivations. Are volunteers who provide personal cares as likely to be involved in socialization activities, or, conversely, are volunteers who engage in socialization activities as likely to help feed the residents? Understanding these differences in volunteer activities may lead to modifying recruitment and training strategies for long-term care volunteers.

The need for socialization among nursing home residents is well documented (Jacelon, 1994; Schulz & Williamson, 1993; Shield, 1990; Stirling & Reid, 1992; Keily, et.al., 2000). The current study indicates that volunteer staff support activities have a positive direct effect on the quality of care that a nursing home is providing. Further research is needed to fully explain this relationship in the context of resident behavior, the over-use of pharmacological interventions to manage behaviors, and the role of the volunteer in providing socialization to the nursing home resident.

In the coming four decades, the pressures on our long-term care system are going to require creative strategies for delivery, funding and quality-monitoring. A potential rich resource is the volunteer looking for a meaningful and rewarding experience. Volunteers can be trained to help the staff provide staff support and socialization for the nursing home resident. The severities of these circumstances dictate that every avenue should be fully explored.

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Table 1

Variable List

Variable	**Description**	**Metric**
BELONGS TO A CHAIN	Is the facility part of a chain?	1 = Yes, 2 = No
OWNERSHIP TYPE	Type of ownership	1 = For profit 2 = Nonprofit
%MEDICAID PATIENTS	Percent of residents relying on Medicaid	1= 0 to 19% 2 = 20% to 39% 3 = 40% to 59% 4 = 60% to 79% 5 = 80% or more
% MEDICARE PATIENTS	Percent of residents relying on Medicare	1= 0 to 9% 2 = 10% to 19% 3 = 20% or more
NUMBER OF BEDS	Current number of nursing home beds	1 = 3 to 49 beds 2 = 50 to 99 beds 3 = 100 to 199 beds 4 = 200 or more beds
NUMBER OF DAYS VOLUNTEERS ONSITE	Number of days volunteers come to the facility	Range = 0 to 7 0. Less than 1 day per week 1-7. Days 99. Not ascertained Blank. Not applicable
NUMBER OF VOLUNTEERS VISITNG WEEKLY	Number of volunteers that usually come to the facility each week	Range = 0 to 70 70 = 70 or more volunteers
NURSING HOURS PER PATIENT	Total nursing (RN/LPN/CNA/AIDE) hours per patient day (hppd)	1. Less than 2 HPPD 2. 2-2.99 HPPD 3. 3-3.99 HPPD 4. 4-4.99 HPPD 5. 5-11.99 HPPD 6. 12 or more HPPD
Duties performed by volunteers:		
Variable	Description	Metric
MEAL ASSISTANCE	Voluntary workers assist residents at mealtime?	1 = No, 2 = Yes
OFFERS SNACKS	Voluntary workers bring residents water/snacks?	1 = No, 2 = Yes
ASSISTS WITH PERSONAL CARE	Voluntary workers assist residents with personal care needs?	1 = No, 2 = Yes

ASSISTS WITH LETTER WRITING	Voluntary workers assist residents with letter writing?	1 = No, 2 = Yes
MAKES SOCIAL VISITS	Voluntary workers make social visits with residents?	1 = No, 2 = Yes
CONDUCTS RECREATIONAL ACTIVITIES	Voluntary workers conduct recreational activities?	1 = No, 2 = Yes
TRANSPORTS RESIDENTS	Voluntary workers transport residents?	1 = No, 2 = Yes
CONDUCTS RELIGIOUS SERVICES	Voluntary workers conduct religious activities?	1 = No, 2 = Yes
CONDUCTS CLERICAL DUTIES	Voluntary workers conduct clerical duties for staff?	1 = No, 2 = Yes
CONDUCTS OTHER DUTIES	Voluntary workers conduct other duties?	1 = No, 2 = Yes

Table 2

Univariate statistical summaries

	Valid	Missing	Mean	Standard Deviation	Variance	Skew	Kurtosis	Range	Minimum	Maximum
Organizational Structure										
Number of beds	1174		2.39	0.81	0.66	-0.12	-0.61	3	1	4
Belongs to a chain	1174		1.48	0.50	0.25	0.10	-1.99	1	1	2
% Medicaid patients	1166	8	3.62	1.15	1.33	-0.83	0.02	4	1	5
% Medicare patients	1166	8	1.59	0.72	0.51	0.79	-0.67	2	1	3
Ownership type	1174		1.40	0.49	0.24	0.42	-1.83	1	1	2
Amount of Volunteers										
Number of days volunteers onsite	920	254	4.18	2.26	5.11	-0.33	-0.99	7		7
Number of volunteers visiting weekly	820	354	12.45	14.04	197.15	2.47	6.32	69	1	70
Types of Volunteer Activities										
Conducts clerical duties	927	247	1.14	0.35	0.12	2.02	2.10	1	1	2
Assists with letter writing	927	247	1.50	0.50	0.25	-0.02	-2.00	1	1	2
Meal assistance	927	247	1.13	0.34	0.12	2.14	2.59	1	1	2
Conducts other duties	927	247	1.06	0.24	0.06	3.74	11.99	1	1	2
Assists with personal cares	927	247	1.06	0.24	0.06	3.70	11.69	1	1	2
Conducts recreational activities	927	247	1.91	0.29	0.09	-2.79	5.80	1	1	2
Conduct religious services	927	247	1.83	0.38	0.14	-1.76	1.08	1	1	2
Offers snacks	927	247	1.25	0.44	0.19	1.13	-0.73	1	1	2
Makes social visits	927	247	1.89	0.31	0.10	-2.55	4.51	1	1	2
Transports residents	927	247	1.38	0.49	0.24	0.51	-1.75	1	1	2
Quality of Care										
Nursing hours per patient	1039	135	2.84	1.19	1.41	1.03	0.72	5	1	6

Table 3

Frequencies – Belongs to a chain

	Frequency	Percent	Valid Percent	Cumulative Percent
1 Yes	616	52.5	52.5	52.5
2 No	558	47.5	47.5	100.0
Total	1174	100.0	100.0	

Table 4

Frequencies – Ownership Type

	Frequency	Percent	Valid Percent	Cumulative Percent
1 For-profit	707	60.2	60.2	60.2
2 Nonprofit	467	39.8	39.8	100.0
Total	1174	100.0	100.0	

Table 5

Frequencies - % Medicare patients

	Frequency	Percent	Valid Percent	Cumulative Percent
1 0-9%	636	54.2	54.5	54.5
2 10-19%	373	31.8	32.0	86.5
3 20 or %	157	13.4	13.5	100.0
Missing	8	.7		
Total	1174	100.0		

Table 6

Frequencies – % Medicaid patients

	Frequency	Percent	Valid Percent	Cumulative Percent
1 0-19%	99	8.4	8.5	8.5
2 20-39%	81	6.9	6.9	15.4
3 40-59%	242	20.6	20.8	36.2
4 60-79%	484	41.2	41.5	77.7
5 80% or more	260	22.1	22.3	100.0
Total	1166	99.3	100.0	
Missing	8	.7		
Total 1174	100.0			

Table 7

Frequencies – Number of beds

	Frequency	Percent	Valid Percent	Cumulative Percent
1 3 – 49 Beds	174	14.8	14.8	14.8
2 50 – 99 Beds	441	37.6	37.6	52.4
3 100 – 199 Beds	485	41.3	41.3	93.7
4 200+ Beds	74	6.3	6.3	100.0
Total	1174	100.0	100.0	

Table 8

Frequencies – Number of days volunteers onsite

	Frequency	Percent	Valid Percent	Cumulative Percent
0	88	7.5	9.6	9.6
1	37	3.2	4.0	13.6
2	112	9.5	12.2	25.8
3	115	9.8	12.5	38.3
4	109	9.3	11.8	50.1
5	174	14.8	18.9	69.0
6	63	5.4	6.8	75.9
7	222	18.9	24.1	100.0
Total	920	78.4	100.0	
999 Missing	254	21.6		
Total	1174	100.0		

Table 9

Frequencies – Number of volunteers visiting weekly

	Frequency	Percent	Valid Percent	Cumulative Percent
1	20	1.7	2.4	2.4
2	60	5.1	7.3	9.8
3	79	6.7	9.6	19.4
4	66	5.6	8.0	27.4
5	82	7.0	10.0	37.4
6	61	5.2	7.4	44.9
7	32	2.7	3.9	48.8
8	36	3.1	4.4	53.2
9	7	.6	.9	54.0
10	121	10.3	14.8	68.8
11	6	.5	.7	69.5
12	34	2.9	4.1	73.7

13	2	.2	.2	73.9
14	4	.3	.5	74.4
15	42	3.6	5.1	79.5
16	3	.3	.4	79.9
18	5	.4	.6	80.5
19	1	.1	.1	80.6
20	42	3.6	5.1	85.7
21	2	.2	.2	86.0
22	1	.1	.1	86.1
23	1	.1	.1	86.2
24	2	.2	.2	86.5
25	22	1.9	2.7	89.1
26	2	.2	.2	89.4
27	1	.1	.1	89.5
30	16	1.4	2.0	91.5
31	1	.1	.1	91.6
32	2	.2	.2	91.8
35	11	.9	1.3	93.2
36	1	.1	.1	93.3
37	2	.2	.2	93.5
40	8	.7	1.0	94.5
42	2	.2	.2	94.8
43	1	.1	.1	94.9
44	1	.1	.1	95.0
45	2	.2	.2	95.2
48	3	.3	.4	95.6
50	8	.7	1.0	96.6
55	3	.3	.4	97.0
59	1	.1	.1	97.1
60	3	.3	.4	97.4
65	1	.1	.1	97.6
67	1	.1	.1	97.7
70 70 or more	19	1.6	2.3	100.0
Total	820	69.8	100.0	

888 Don't know	1	.1
999 missing	353	30.1
Total missing	354	30.2
Total	1,174	100.0

Table 10

Frequencies – Conducts clerical duties

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	793	67.5	85.5	85.5
2 Yes	134	11.4	14.5	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 11

Frequencies – Meal assistance

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	802	68.3	86.5	86.5
2 Yes	125	10.6	13.5	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 12

Frequencies – Assists with personal cares

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	871	74.2	94.0	94.0
2 Yes	56	4.8	6.0	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 13

Frequencies – Offers snacks

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	691	58.9	74.5	74.5
2 Yes	236	20.1	25.5	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 14

Frequencies – Transports residents

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	577	49.1	62.2	62.2
2 Yes	350	29.8	37.8	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 15

Frequencies – Conducts other duties

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	872	74.3	94.1	94.1
2 Yes	55	4.7	5.9	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 16

Frequencies – Makes social visits

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	99	8.4	10.7	10.7
2 Yes	828	70.5	89.3	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 17

Frequencies – Conducts recreational activities

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	87	7.4	9.4	9.4
2 Yes	840	71.6	90.6	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 18

Frequencies – Conducts religious services

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	158	13.5	17.0	17.0
2 Yes	769	65.5	83.0	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 19

Frequencies – Assists with letter writing

	Frequency	Percent	Valid Percent	Cumulative Percent
1 No	459	39.1	49.5	49.5
2 Yes	468	39.9	50.5	100.0
Total	927	79.0	100.0	
Missing	247	21.0		
Total	1174	100.0		

Table 20

Frequencies – Nursing hours per patient

	Frequency	Percent	Valid Percent	Cumulative Percent
1 Less than 2 HPPD	64	5.5	6.2	6.2
2 2 – 2.99 HPPD	409	34.8	39.4	45.5
3 3 – 3.99 HPPD	364	31.0	35.0	80.6
4 4 – 4.99 HPPD	79	6.7	7.6	88.2
5 5 – 11.99 HPPD	73	6.2	7.0	95.2
6 12 or more HPPD	50	4.3	4.8	100.0
Total	1039	88.5	100.0	
Missing	135	11.5		
Total	1174	100.0		

Table 21

ESEM - Two-factor solution for types of volunteer duties with geomin oblique rotation

	Staff Support	Socialization
Conducts clerical duties	***.76**	-.03
Conducts other duties	***.54**	-.22
Assists with letter writing	***.53**	.21
Offers snacks	***.51**	.11
Transports residents	***.47**	*.38
Meal assistance	***.43**	.13
Assists with personal cares	*.34	.04
Conducts religious services	.00	***.75**
Makes social visits	.09	***.61**
Conducts recreational activities	-.08	***.47**

Note: Primary factor loadings for each variable are in boldface (all >.40). Non-trivial secondary factor loadings (>.25) are shaded. Correlation between Staff Support and Socialization is .70, $p < .001$. The weighted least squares mean value (WLSMV) was the estimator used. Missing data were imputed using Mplus multiple imputation (MI). Factor loadings are standardized. Correlated measurement errors between "Assists with letter writing" - "Makes social visits" and "Meal assistance" – "Offers snacks" included, see Figure 1.

*Loading is significant, p < .01

$\chi^2 = 177.068$, *d.f.* = 88, $p < .05$; *RMSEA* = .029, *CFI* = .967; *TLI* = .943; N = 1,174

Table 22

Direct, Indirect and Total Effects[1]

Outcome	Predictor	Causal Effects		
		Direct	**Indirect**	**Total**
Nursing hours per patient	% Medicare patients	**0.10**	0.02	**0.12**
	Belongs to a chain	0.09	0.00	0.09
	Ownership type	0.00	0.09	0.09
	Number of days volunteers onsite	0.00	-0.02	-0.02
	% Medicaid patients	0.00	-0.05	-0.05
	Number of beds	-0.09	0.01	-0.07
	Number of volunteers visiting weekly	0.00	**-0.10**	**-0.10**
Number of days volunteers onsite	Ownership type	**0.15**	0.00	**0.15**
	Number of beds	**0.20**	0.00	**0.20**
	Belongs to a chain	0.00	0.00	0.00
	% Medicare patients	0.00	0.00	0.00
	% Medicaid patients	0.00	0.00	0.00
Number of volunteers visiting weekly	Ownership type	**0.21**	0.00	**0.21**
	Number of beds	**0.31**	0.00	**0.31**
	Belongs to a chain	0.00	0.00	0.00
	% Medicare patients	**-0.13**	0.00	**-0.13**
	% Medicaid patients	**-0.11**	0.00	**-0.11**
Volunteers provide staff support	Ownership type	**0.33**	0.06	**0.39**
	Number of beds	**0.22**	0.09	**0.31**
	Belongs to a chain	0.00	0.00	0.00
	% Medicare patients	0.00	-0.04	-0.04
	% Medicaid patients	**-0.11**	-0.03	**-0.14**
Volunteers provide socialization	Number of beds	0.00	**0.20**	**0.20**
	% Medicaid patients	**0.14**	-0.07	0.07
	Belongs to a chain	0.00	0.00	0.00
	Ownership type	**-0.15**	**0.10**	-0.05
	% Medicare patients	0.00	-0.08	-0.08

[1]All regression coefficients are standardized. $p < .05$. Bold-faced indirect effects comprise combinations of statistically significant direct paths. In turn, total effects include only those direct and indirect effects that involve statistically significant pathways. N = 1,174.

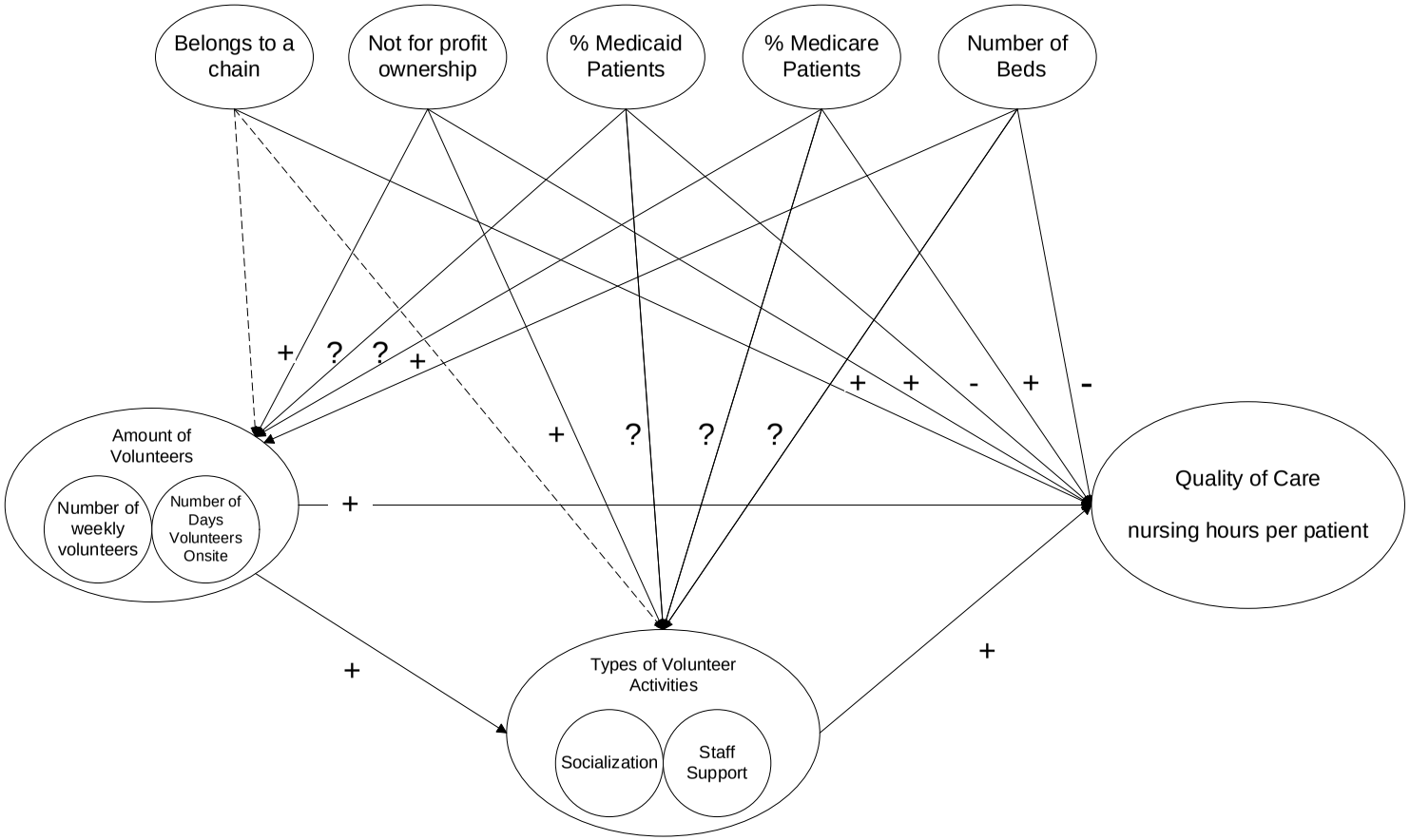

Figure 1. The hypothesized model depicting the relationships between organizational structure, amount of volunteers, types of volunteer activities and nursing hours per patient. Each path is annotated with a positive or negative sign to indicate the expected effect . The question mark indicates that the outcome is not hypothesized. Dashed lines indicates no effect is expected.

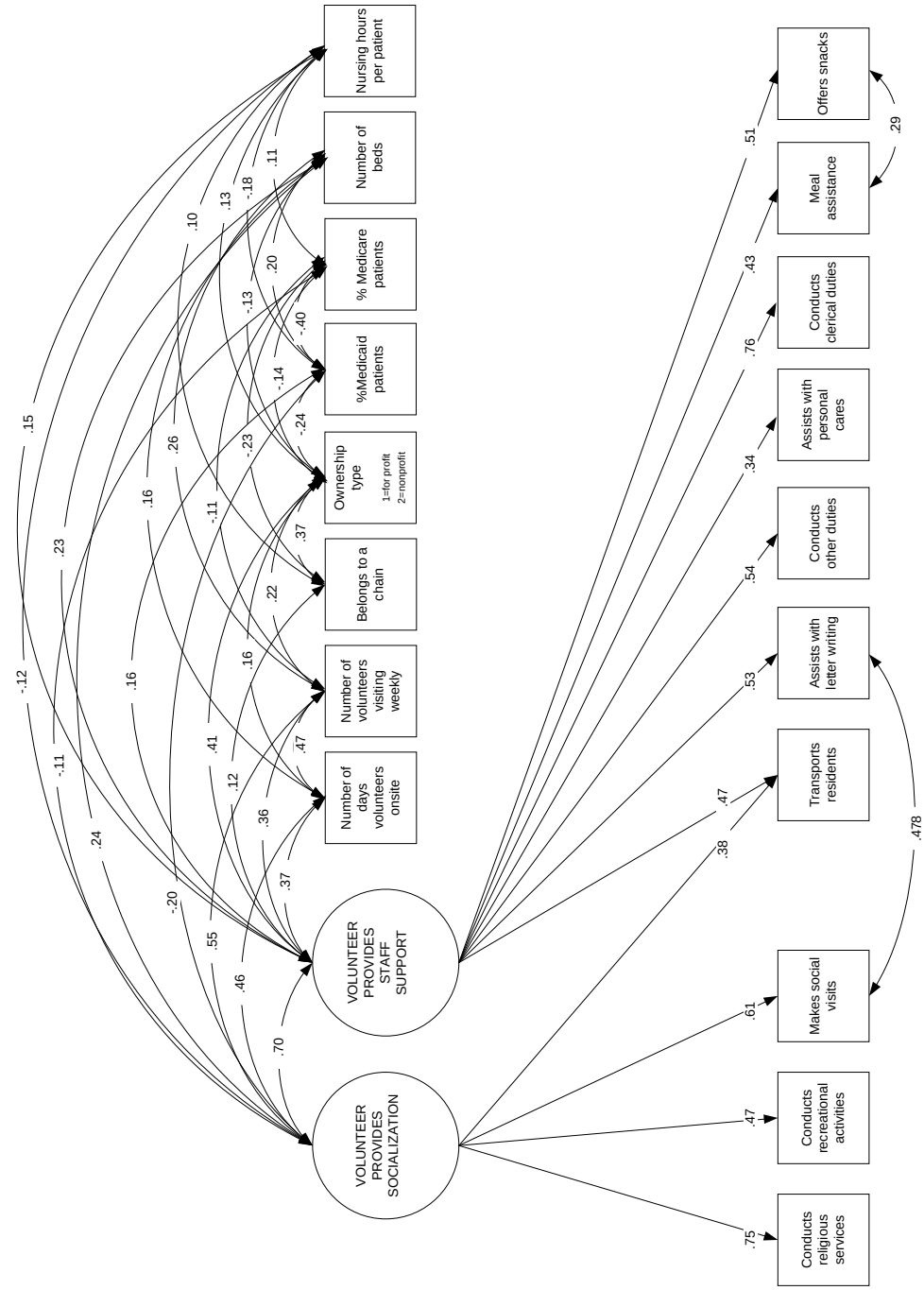

Figure 2. ESEM 2-factor solution for types of volunteer activities.
$\chi^2 = 177.068$, $d.f. = 88$, $p < .05$; $RMSEA = .029$, $CFI = .967$; $TLI = .943$; N = 1,174

The weighted least squares mean value (WLSMV) was the estimator used. Missing data was imputed using Mplus multiple imputation (MI). Factor loadings are standardized. Only statistically significant paths and correlations are shown, $p < .01$

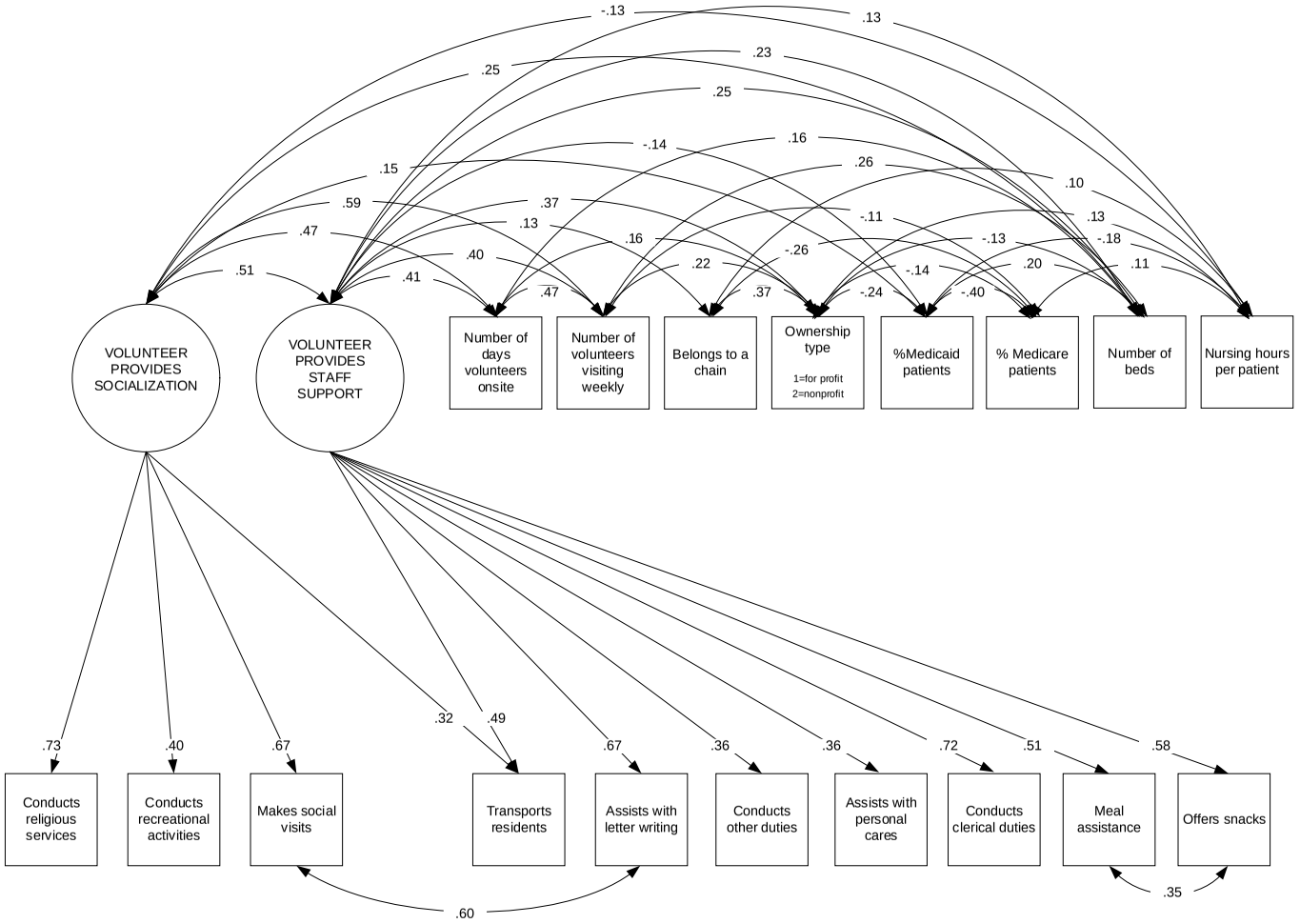

Figure 3. CFA model for types of volunteer activities.
χ^2 = 200.044, *d.f.* = 95, $p < .05$; *RMSEA* = .031, CFI = .961; *TLI* = .938; N = 1,174

The weighted least squares mean value (WLSMV) was the estimator used. Missing data was imputed using Mplus multiple imputation (MI). Factor loadings are standardized. Only statistically significant paths and correlations are shown, $p < .01$

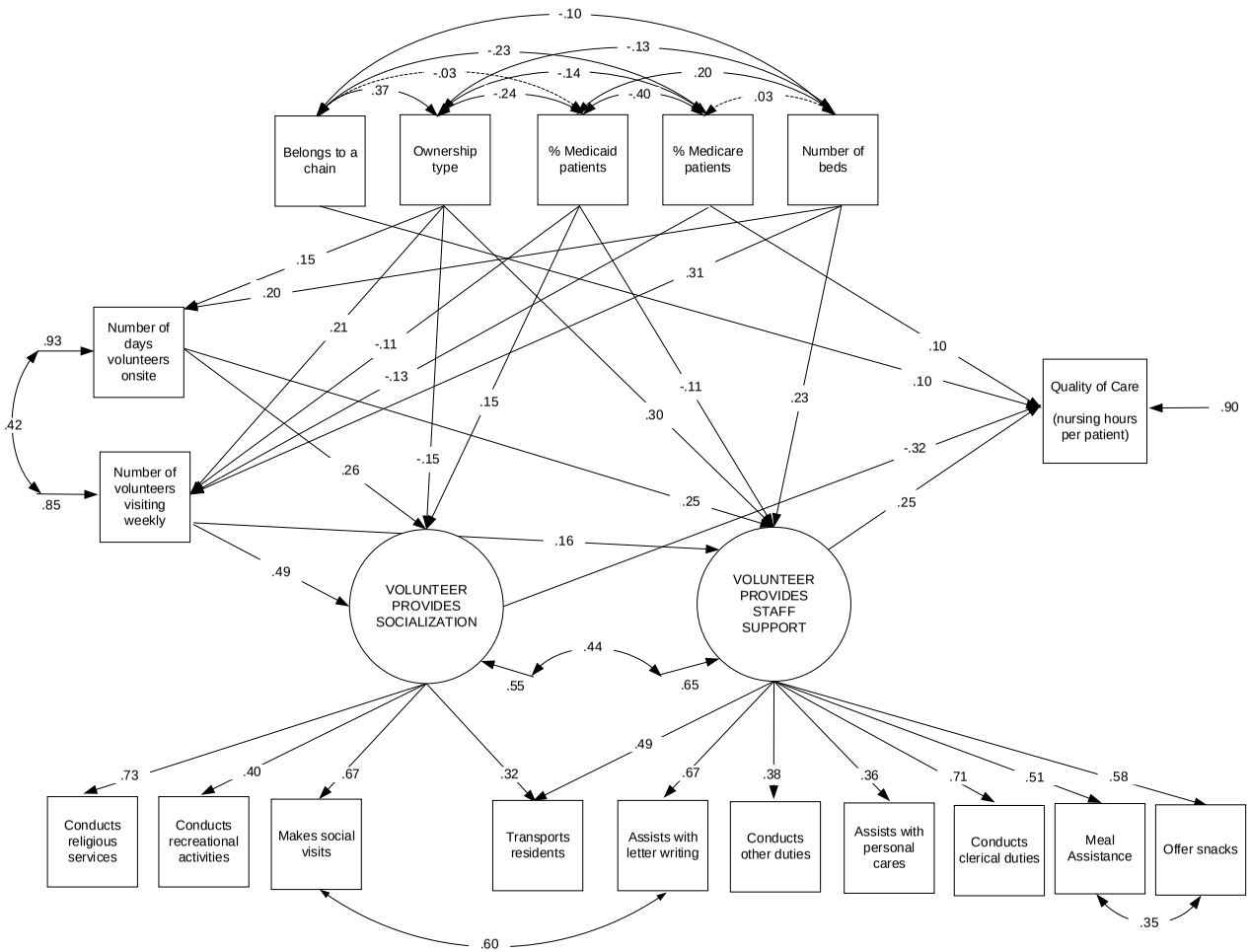

Figure 4. Structural equation model for organization structure-amount of volunteers – types of volunteer activities and nursing hours per patient. $\chi^2 = 200.044$, *d.f.* = 95, $p < .05$; *RMSEA* = .031, *CFI* = .961; *TLI* = .938; N = 1,174

The weighted least squares mean value (WLSMV) was the estimator used. Missing data was imputed using Mplus multiple imputation (MI). Factor loadings are standardized. Only statistically significant paths and correlations are shown, $p < .01$